

PRODUCTION

FLOW

BASIC MONTHLY

MATERIALS HANDLING AND PACKAGING METHODS

NOVEMBER, 1952

Conveyors That
Go Around Bends
and Corners
page 64

Building Designed
For Handling
page 57

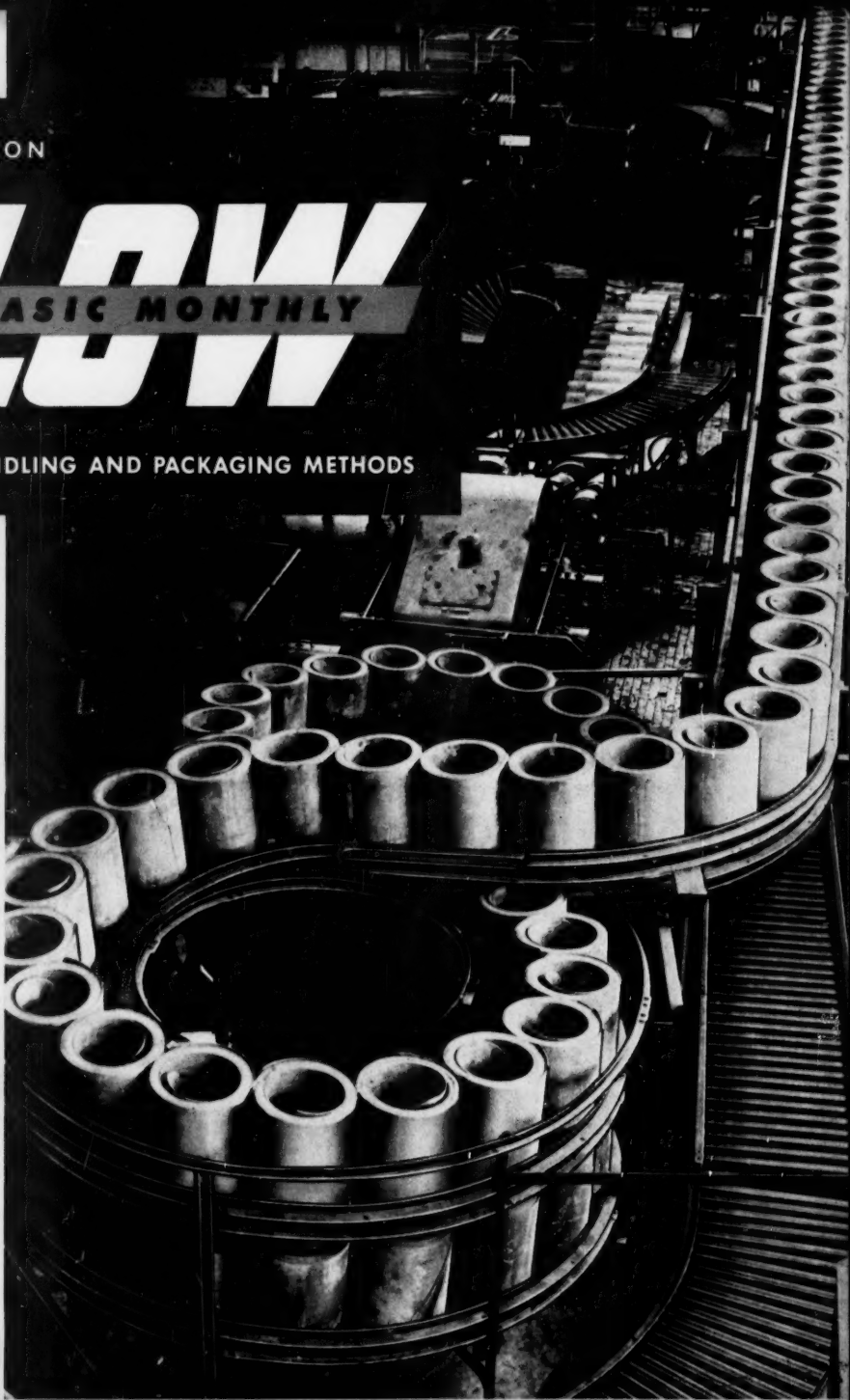
The Big Snows
are Coming—
Be Prepared
page 72

Adhesives for
Sealing Containers
page 104

For complete table
of contents, see
page 3.

FLOW BASIC
FLOW QUARTERLY }

130,000 Plant Coverage



A CHALLENGE to YOU...and YOU!

REVOLUTIONARY NEW PRINCIPLES OF DESIGN MAKE THESE PRODUCTS OUTPERFORM ANY OTHERS...
.....AND CUT YOUR HANDLING COSTS. HERE'S A TEST YOU CAN'T LOSE

TRY
2 PUSH PEDALS
FOR SAFETY!



Heavy gauge steel construction provides smooth uniform and edges—assures precision finish. This all-steel construction has no moving parts to get out of order or wear out.

PRESS DOWN TO LOCK

PRESS DOWN TO RELEASE

ALL-STEEL

TRUCK LOCK
RIGHT IN YOUR OWN PLANT

If you want to save time, toes and money, there's a simpler way to lock and unlock your truck. The Noelting Faultless Truck Lock operates. You simply step on one pedal to lock—step on the other pedal to release. Each action is positive. No more soiled shoes from rough cast edges. No more soles torn away from shoe tops. Toe presses down on the Faultless Truck Lock—*toe does not lift.* YOUR HELP WILL PREFER THIS SAFE TRUCK LOCK. SAFETY ENGINEERS DEMAND THEM.

Install Faultless Truck Locks on your equipment, try them for 30 days. If they don't outperform any other similar purpose Locks you've used, the experience with Faultless Locks costs you nothing! Fair enough? Just communicate with our main office.

PRESS DOWN TO LOCK PRESS DOWN TO RELEASE



The steel brake disc assembly has a universal joint to assure the brake surface a firm, flat contact with the floor even when floor surface is not level. V-grooved friction disc for use on angle floor track with Faultless V-grooved Internal Casters also available.

NON-SLIP TREADS ON FOOT PEDALS

For use on all types of trucks, portable stores, loaders, dollies, etc., where a device for locking and unlocking is desirable.



SPRING ACTION
CASTERS

If you handle ceramics, fragile assemblies, liquids, other heavy materials needing added protection of shock-absorbing casters, Noelting Faultless SpringAction Casters on your equipment. This unique caster construction maintains a level load on trucks moving over irregular floors. Wheels contact floor surface at all times—eliminate bounce—don't raise truck wheels mounting obstacles.

Already time-tested by leading industrial engineers, this Caster is acclaimed for its use of standard, interchangeable wheels... absorption of high impact shocks through use of a large, durable spring and compensator. The spring and draw bar assembly a separate member. Write for catalog data with complete load capacities and specifications.

Note how large compensator for floor irregularities eliminates bounce or shock, protects both load and caster.



- 2 to 1 Lever Arm reduces shock—lengthens Spring life.
- Extended Wheel Offset for easier swiveling.
- Standard Wheels, 3 types, easily interchanged.

- Shock absorbing spring under compression lengthens life of bearings, raceways, wheel, etc.
- Springs of various load capacities easily interchanged to suit requirements.

Announcing... **NEW TRANSVEYOR!**

Automatic's **MANEUVERABLE AISLE-WORKING HIGH STACKER**

EXPRESSLY DESIGNED for

- ★ Greater Storage Space
- ★ Narrow Aisles
- ★ High Stacking
- ★ Maneuverability in Close Quarters
- ★ Limited Capacity Floors, Elevators
- ★ Economy and Long Life

To answer industry's need for a compact, low-cost stacker for extreme close-quarter lifting, moving and stacking, Automatic now offers an entirely new riding-type electric truck—The Transveyor!

EXCLUSIVE FEATURES!

- Patented Balanced Action—No Frame Distortion
- Pivoted Steering Axle • Two Steering Wheels
- Two Equal Sized Tires • Equalized Load Distribution on Both Steering Wheels Regardless of Floor Condition
- Distribution of Weight Not Affected by Tire Wear
- Identical Ball Bearing Steering Turntables

In addition to the exclusive innovations, Transveyor also embodies these time-tested, service-proved AUTOMATIC features:

Dead-man control—Cold drawn Alloy steel uprights—Two-wire electrical system—no ground circuits—Controlled plugging—maximum operator visibility—Easy top or side removal of battery—maximum battery accessibility and protection.

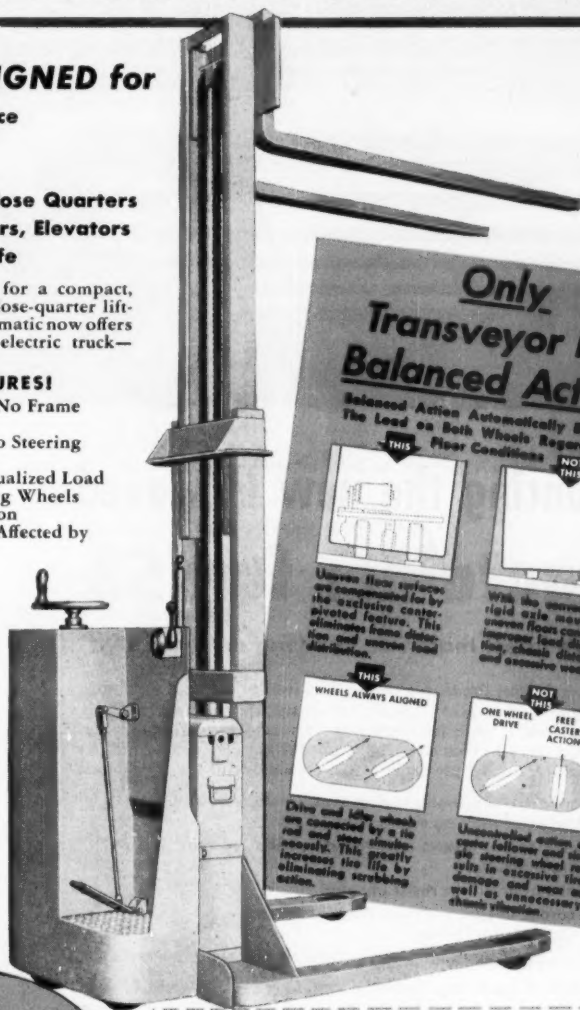
Mail Coupon

Write today for free literature with diagrams, data, complete specifications on either or both 2500 lbs. capacity or 4000 lbs. capacity. Mail coupon for yours today



**WORLD'S LARGEST EXCLUSIVE BUILDER
OF ELECTRIC INDUSTRIAL TRUCKS**

Trade Mark
® Registered

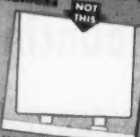


Only **Transveyor has Balanced Action!**

Balanced Action Automatically Equalizes
The Load on Both Wheels Regardless of
Floor Conditions



Uneven floor surfaces are compensated for by the exclusive center-pivoted feature. This eliminates frame distortion and uneven load distribution.



With the conventional rigid axle mounting, uneven floors can cause improper load distribution, chassis distortion, and excessive wear.



Drive and idler wheels are connected by a tie rod and steer simultaneously. This greatly increases tire life by eliminating scrubbing action.



Uncontrolled action of center followers and rigid steering wheel results in excessive tire damage and wear as well as unnecessary chassis vibration.

141 West 87th Street, Dept. W-2

Automatic © Chicago 20, Illinois

Please send, without obligation, complete facts on the new Automatic Transveyor ☐ 2500 Lbs. Capacity ☐ 4000 Lbs. Capacity

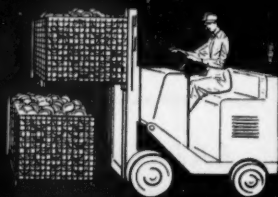
Company Name.....

By..... Position.....

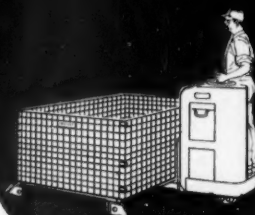
Street Address.....

City..... Zone..... State.....

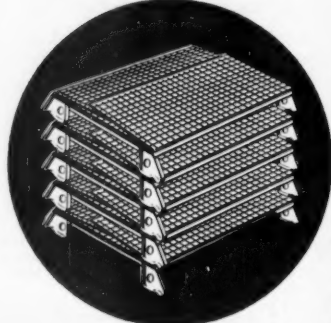
Circle No. 2 on Reader Service Card for more information



No longer any need for always loading below top wires. 4-leg system provides new leeway.



Now handled by all types of moving equipment. Stacking is made easier by new 4-leg arrangement.



Better stacking for folded Cargotainers. Five may be stacked in the space of one unfolded.

Announcing the new improved Cargotainer for '53

America's latest materials handling development

Here is Pittsburgh Steel Products Company's answer to the need in industry for a more rugged and efficient container for storage, shipment and assembly-line operation. Notice the extra-tough new base construction on this new *clearview* model for '53 which will supplement but not supplant the standard Cargotainer. Here, briefly, are some of the advantages of the new model:

1. Elimination of the center legs makes possible the use of all types of moving equipment.
2. The open center allows loading above the top wire without stacking difficulty.
3. Special corner plates resist unusual shock.
4. New corner design provides easier stacking and more secure locking.
5. Five folded Cargotainers now occupy the space of one unfolded.

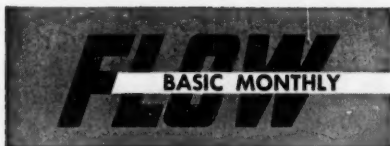
The new model will interchange and stack with the standard model and all the original advantages have been retained. For further information and prices, please write to us. Department FL, Pittsburgh Steel Products Company, Grant Building, Pittsburgh 30, Pennsylvania.

CARGOTAINERS

by Pittsburgh Steel Products Company

A Subsidiary of Pittsburgh Steel Company

Circle No. 3 on Reader Service Card



VOL. 8, NO. 2

NOVEMBER, 1952

FLOW is not the official publication of any group, society or other special interest: its editorial pages are unbiased and undominated.

President and Publisher
IRVING B. HEXTER

Executive Vice President
LESTER P. AURBACH

Vice President
EDWIN M. JOSEPH

Editor
EDWARD H. LEIGHTEN

Associate Editors
STANLEY S. GREENE
ROBERT A. PERSCHE
JOHN D. VELARDO

Production Manager
WM. L. JERSE

FLOW EDITORIAL AND BUSINESS OFFICES

All communications should be addressed to FLOW Magazine, 1240 Ontario Street, Cleveland 13, Ohio.

Phone Superior 1-9622
AT&T Teletypewriter No. CV-233

Cleveland Office

DAVID E. SAWYER
1240 Ontario Street
Cleveland 13, Ohio
Phone Superior 1-9622

New York Office

LEE HAAS, MGR.
TED DRISCOLL
Room 103
40 E. 42nd St.
New York 17, New York
Murray Hill 7-3420

Chicago Office

FRED P. MIGNIN, JR., MGR.
LLOYD WILLOUGHBY
Room 734
520 N. Michigan Ave.
Chicago 11, Illinois
Whitehall 3-1655

Los Angeles Office

FRED FRISENFELD
Industrial Publishing Co.
Room 407
1250 Wilshire Blvd.
Los Angeles 17, Calif.
Tucker 6703

London Office

JOHN A. LANKESTER
5 New Bridge Street
London, E.C., 4, England
City 4815

Distributor Representative
HAROLD F. BEHM

FLOW Magazine is affiliated with the Industrial Publishing Company which also publishes:

FLOW QUARTERLY
PRECISION METAL MOLDING
APPLIED HYDRAULICS
INDUSTRY AND WELDING
OCCUPATIONAL HAZARDS
COMMERCIAL REFRIGERATION
AND AIR CONDITIONING

CONTENTS

FEATURES

Building Designed for Handling	57
Clever Ideas Aid Brewery's Shipping	63
Conveyors That Go Around Bends and Corners	64
Electronic Controls Synchronize Conveyor Speeds	68
Horizontal, Vertical, Inclined Center Distances, Angles of Inclination of Belt Conveyors (Flow Engineering Data Page)	71
The Big Snows Are Coming—Be Prepared	72
Floor Cranes Make For Great Flexibility	74
Cost Cutting Ideas	80
Saving \$59,545 in Coil Handling and Storage	82
Two-Way Radio Installation Pays for Itself in Only Six Months	86

PACKAGING & SHIPPING SECTION

What's New in Packaging and Shipping Equipment	97
Adhesives for Sealing Containers	98
How General Electric Solved Two Tough Packaging & Shipping Problems	101
Shipping Fragile Porcelain Components	102
Faster Loading and Unloading of Heavy Machinery	104

DEPARTMENTS

Advertisers Index	159
Association and Society News	28
Classified Advertisement Section	158
Highlights of the Months News	19
Letters to the Editor	8
Literature Featured in Ads	46
Men in the News	12
News from the Sales Field	54
News Views & Trends	30
What's New in Equipment	38
What's New in Useful Literature	120

FLOW is indexed regularly by Engineering Index, Inc.

SUBSCRIPTION RATES

United States and possessions—\$5.00 per year, \$8.00 for 2 years. Subscriptions in the United Kingdom: £1.10 per annum, payable in Sterling to our London Office.	Canada—\$4.00 per year, \$6.00 for 2 years. Foreign—\$5.00 per year. Single copy price—80 cents.
--	--

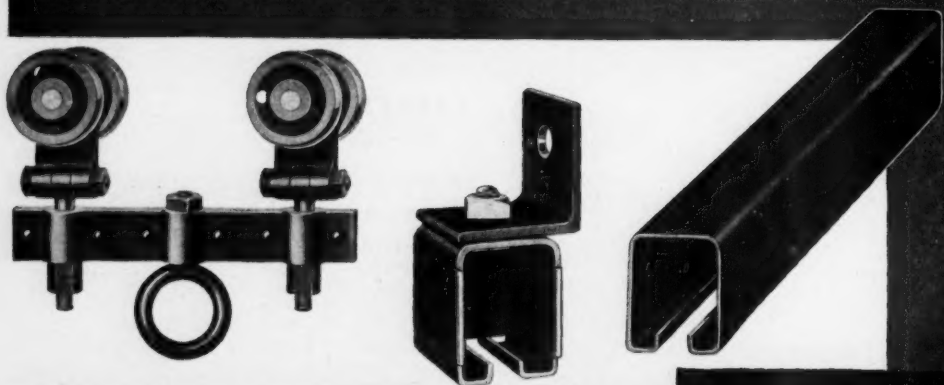
Published Monthly

"Acceptance under section 34.64 P. L. & R. authorized at Pontiac, Illinois."

Copyright 1952 by The FLOW Publishing Company

COBURN

OVERHEAD CONVEYING EQUIPMENT



simple to install your own men can do it

Minimum investment cost and easy installation by your own plant personnel. These are two big money-saving advantages you get with Coburn Overhead Conveying Equipment.

That's because Coburn track, brackets and carriers are simple in design; present no problems requiring complicated engineering. Inexpensive re-arrangement or extension can also be made at any time because of the sectional design of Coburn Overhead Monorail.

In numerous plants and factories Coburn Conveying Equipment is proving its ability to pay for itself, many times over, in greater labor efficiency and faster handling of materials. Write for Catalog #220 to Coburn Sales and Engineering, 56 Sterling St., Clinton, Mass.

THE COLORADO FUEL AND IRON CORPORATION • Denver, Colorado
THE CALIFORNIA WIRE CLOTH CORPORATION • Oakland, California
WICKWIRE SPENCER STEEL DIVISION • Atlanta • Boston • Buffalo
Chicago • Detroit • New York • Philadelphia



COBURN PRODUCTS

PRODUCTS OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION



Circle No. 4 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

ELWELL-PARKER Trucks

reduce man-hours 75%

utilize *all* storage space

provide fume-free food protection

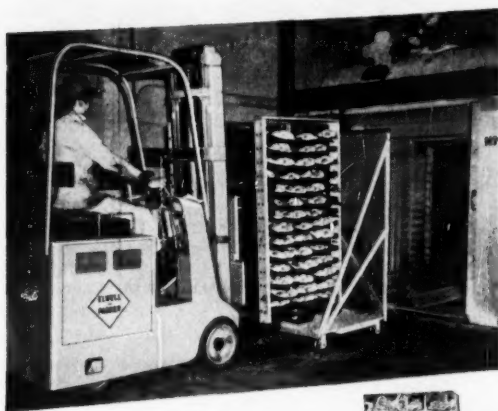


SAVING COSTLY LABOR—In this cold storage plant, four Elwell-Parkers plus operators do as much work as 16 men did by manual means . . . Here truck is storing pallet load of 50-pound sacks of onions. This Elwell-Parker, plus two men who work in freight cars palletizing the sacks, unloads and stores *four* carloads of onions in eight hours.

CHANGING SQUARE FEET TO CUBIC FEET—By assembling these crates of apples in master unit loads and high stacking them, all air conditioned space is profitably utilized. Besides achieving *roof-high* storage at *low-level* costs, there is greater order and all materials are quickly accessible.



SAFEGUARDING PERISHABLE FOODS—Contamination is impossible because these Elwell-Parkers have fume-free electric battery power. Here palletized racks of fish are rushed into cold freezer, so that doors are opened for shorter periods. Elwell-Parker's ease of control assures perfect spotting of load on this castored rack.



BIG BENEFITS LIKE THESE are being made by Elwell-Parkers in *every* phase of the food industry—procurement, processing and distribution. For specific counsel about your needs, ask us to send your nearby man . . . He is backed by Elwell-Parker's more than 45 years' experience that has solved hundreds of food handling problems. The Elwell-Parker Electric Company, 4290 St. Clair Ave., Cleveland 3, O.

NEW General Catalog
describes E-P line
in detail.
Send for it now.



ELWELL-PARKER
POWER INDUSTRIAL TRUCKS

Established 1893

Circle No. 5 on Reader Service Card for more information

*Latitude? Longitude?
Azimuth? Angle?*

**...They Count on this Counter
to tell exactly**

Added Evidence
that _____

Everyone Can Count on VEEDER-ROOT

Aerial navigators and bombardiers rely on the figures that keep turning up on this Veeder-Root Counter, specially designed for the Armed Forces. And if *you* need to know exactly where you are, with any product or mechanism that's vital to Defense, then you can

count on Veeder-Root to help you, to the utmost limits of ability . . . and of available capacity. Write:

VEEDER-ROOT INCORPORATED

"The Name That Counts"

HARTFORD 2, CONN.

Chicago 6, Ill. • New York 19 • Greenville, S. C.

Montreal 2, Canada • Dundee, Scotland

Offices and agents in principal cities



"Counts Everything on Earth"

Circle No. 6 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

The Facts about Electric Motors for Fork Trucks

...and what they mean to you

MANY users of electric industrial trucks feel all they need to know about the motor is that it has adequate power and the label of a well-known manufacturer.

Actually, there's much more to it than that.

These Facts May Surprise You

Motor requirements for industrial trucks are radically different from those of any other DC motor.

Even good vehicle motors fall way short of being a good motor for industrial truck applications.

A Truck Motor Has to Be Different

The "pigs is pigs" philosophy just doesn't make sense when you're talking about industrial truck motors. If you are a careful buyer, you are naturally interested in the best possible performance: the performance of your truck can be no better than the motors which supply power for travel, lift and tilt.

Why can't ordinary commercial motors give you the power and dependability you want? Well, look at industrial truck power requirements:

The travel motor must accelerate the loaded truck 300 to 700 times a day. The hoist motor must lift and tilt the load for every loaded start.

An industrial truck motor should be designed to meet the requirements of the toughest conditions under which it will operate. For example, take a 4000 pound capacity fork truck. You need only 3½ horsepower normally. Yet under certain conditions the motor might have to put out, momentarily, as high as 50 horsepower.

But it just isn't practical to use a motor capable of delivering maximum requirements continuously. Such a motor would be much too large, too heavy, too expensive.

Why Baker Builds its Own Motors

No motor made for ordinary industrial use stands up as well as our own to the rugged requirements we've outlined. That's why nearly every industrial truck we produce contains our own Baker motor.

Baker truck motors are the result of almost 50 years' motor design experience.

During this half-century, Baker has learned a lot about motors. We've developed, and patented, many exclusive features to make our motors the best industrial truck motors available.

Let's look at some of these "exclusives", and see what they mean to you.

Almost 25% more Power. The unique design of the armature in a Baker motor provides a cross-section of iron in the armature windings of almost 25% more area than is found in other motors of comparable size.

The more cross-section you can get into an armature, the more magnetic force you can introduce into it. This is true for the same reason that it's easier to force a given amount of water through a large pipe than a small one, in the same time.

Easier Maintenance. When the leads on most motors burn out and need repairing, it usually means a 5 to 15 hour job. The same work on a Baker motor takes less than one hour and is required less often.

Here's why: Most motors are built with leads from the fields running through insulated holes in the motor housing. These leads are jarred and rubbed constantly by the truck's vibration. When the fine strands break, the leads burn out. Repairing these leads takes as long as 15 hours on the ordinary motor, because to get at them you must dismantle the motor.

But Baker uses external terminals, mounted on the motor casing. Leads from the field are soldered in slots at the base of the terminal.

Since there is no flexing at this terminal, lead failure is rare. When it happens, repair takes only a few minutes—not hours.

Fewer Burn-outs. Each Baker field coil is made of two parallel sets of coils, wound so both ends of wire for each set are on the outside.

Coils can be connected in series or parallel, depending on what you need. The parallel connection gives you more speed; series connections provide more torque. And you can make the change from one to the other in half an hour.

Another advantage of our field coil design: Because there are no soldered connections inside the coil, which is the coil's hottest point, risk of failure here through melted connections is eliminated.

More Power—Less Heat. A good industrial truck motor takes heavy over-loads without heating up excessively. Yet it's small enough to fit the compact design of the modern truck. Baker engineers designed the Baker motor to meet these requirements by including 30% more copper in our motor than is found in any other motor of comparable size.

This bonus copper is built into the motor without increasing the motor size by using rectangular copper wire instead of the conventional copper rounds in its armature and field coils. This gives us a fuller use of the cubic space in these windings. It gives you more emergency power with less danger of burnouts.

These and the many other exclusive features in the Baker motor make it able to deliver more power per unit of current than any other motor of its size and weight.

These are further examples of the user-benefits researched and engineered by Baker, the oldest name in electric vehicles.

For your copy of a new 8-page booklet on Baker equipment write for Catalog 54.



The Baker-Raulang Co.
1219 West 80th St. • Cleveland 2, Ohio

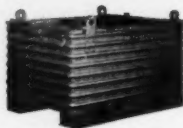
Circle No. 7 on Reader Service Card for more information

Here's why

**logged BRUSCO
handling equipment
increases efficiency**

BRUSCO CORRUGATED STEEL BOXES

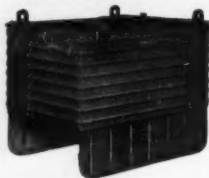
Save floor space — stack safely from floor to roof. Four way entry for fast, efficient handling. Equipped with crane lugs for movement by crane. Fabricated from heavy gauge corrugated steel to give added rigidity and maximum strength. Thoroughly and securely arc welded for longer, maintenance free life. Made in various sizes and load capacities to suit your requirements.



No. 558

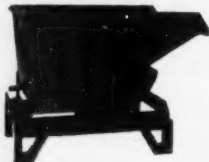
No. 559 BRUSCO CORRUGATED SKID BOX

Saves valuable floor space and speeds production. Made in all sizes and various gauges of steel to fit any load capacity. Stack from floor to roof.



No. 1210 BRUSCO SELF DUMPING HOPPER

Speeds production and saves labor in handling your parts and materials. This hopper is fabricated of heavy steel plate thoroughly reinforced. Made in $\frac{1}{2}$, 1, $1\frac{1}{2}$ and 2 cubic yard capacities. Under-clearance is optional.



Write today for new Bulletin No. 500 presenting the most complete line of Part Boxes and Brusco Self Dumping Hoppers on the market.

Brusco

HANDLING EQUIPMENT

BRUMMELER STEEL PRODUCTS CORPORATION

1410 Ionia Ave., S. W. Grand Rapids, Michigan

Circle No. 8 on Reader Service Card for more information

LETTERS to the editors

To FLOW:

I would like to obtain names of companys that have a similar operation to ours at Kellogg Co. in regard to sorting a large amount of various case sizes and case numbers.

Several cases may be the same case dimension, but a different case number, therefore requires sorting and placing on separate pallets to be stored in our warehouse. Our present operation consists of several small conveyor belts that deliver approximately eighty five or ninety thousand cases over a period of twenty-four hours and about fifty to sixty different case numbers into our warehouse and sorted onto two revolving tables or so-called turntables.

I would also be interested in obtaining information of any company that may have a (A frame) sorting station or any other method of sorting various number cases.

C. H. Uldriks,
Kellogg Warehouse
The Kellogg Co.

An outstanding example of just the type of company Reader Uldriks has in mind is the new Colgate-Palmolive-Peet warehouse in Jeffersonville, Indiana. An unusually fine handling set-up has greatly simplified their job of moving many different products and sizes of cases coming into the warehouse at all times. Information and names of other contacts have been forwarded to Reader Uldriks.

To FLOW:

One of our accounts has a problem of transporting order forms and small pads of printed forms between various desks in a large office. These people are interested in obtaining some kind of a system which would move this material between the desks in baskets or carriers. They have considered using a trolley type conveyor, but have discarded this idea because of the noise the unit would make in their office.

The size of the pads they would



a glutton for cullet... or any bulk materials

"PAYLOADER" tractor-shovels have made outstanding records in thousands of plants by reducing the time, labor and cost of handling all kinds of bulk materials. They scoop-up, carry, dump and stockpile materials . . . lift, push . . . spot and unload box cars . . . handle coal and ashes and do many other cost-cutting chores. They take over slow, laborious jobs and do them faster, easier and cheaper—releasing manpower for more productive work.

Every "PAYLOADER" is a complete Hough-built tractor-shovel *designed specifically for tractor shovel work*. Multiple reverse speeds, large pneumatic tires and other features insure fast, low-cost performance over floors or unpaved ground, in congested areas, up or down ramps. The "PAYLOADER" is sold by a world-wide Distributor organization with complete service facilities. The Frank G. Hough Co., 731 Sunnyside Ave., Libertyville, Illinois.

HELPS for your handling problems are found in **INDUSTRIAL HANDLING**, the Hough magazine of bulk-handling ideas. Literature on all seven sizes of "PAYLOADERS" from 12 cu. ft. to 1½ cu. yd. are also available, without obligation.



PAYLOADER

THE FRANK G. HOUGH CO. • Since 1920



One in a series of factual reports from owners of Farquhar Conveyors

FARQUHAR CONVEYORS STEP UP EFFICIENCY AND EASE WORK LOAD*



CARRYING heavy cases of liquor from trucks to warehouse storage and from warehouse to display floor is tough, back-breaking work. Recognizing this, one large eastern liquor store began looking for an easier way . . . and solved its handling problem with this system of Farquhar Conveyors. Employees are now less fatigued, more willing, and efficiency has been stepped up tremendously.

Whether you move coal, gravel, sand, aggregates, cartons, boxes, bundles, bales, or any kind of bulk or packaged materials—horizontally or from floor to floor—Farquhar can cut your handling costs to rock bottom! One or more of the complete line of Farquhar portable, semi-permanent and permanent conveyors will solve your handling problem. Our engineers will be glad to consult with you . . . at no obligation.



WRITE for complete information to
A. B. FARQUHAR CO., Conveyor Dept.
N.O.6, 142 N. Duke St., York, Pa., or
618 W. Elm St., Chicago 10, Ill.

**WORLD'S MOST COMPLETE
CONVEYOR LINE**

A. B. FARQUHAR COMPANY Division of THE OLIVER CORPORATION

Circle No. 10 on Reader Service Card for more information

move around would be too large for a pneumatic tube system.

We thought you might know of some light-weight conveyor system that would work in this instance and could give us the name of the manufacturer.

S. Roberts

S. Riekes & Sons

The names of several manufacturers of conveyor systems like the one requested by Reader Roberts have been forwarded. In a forthcoming issue, *FLOW* will run an article on material handling in offices and business establishments. It will show solutions for several tough office-handling problems.

To *FLOW*:

We are interested in installing a training and safety program for our fork-truck operators. Would you please send us any information available that would assist in our program?

Charles Hughson

Minnesota Mining & Mfg. Co.

Two articles have been run in *FLOW* on the subject of fork truck driver training and safety. In March, 1951, a program being practiced at Carrier Corp. was discussed. Last month, (November, 1952), a list of rules for fork truck drivers at the Cadillac Tank plant was run. Copies of both articles are available to interested readers.

To *FLOW*:

Will you please send us three copies of a recent *FLOW* article "How to Select the Correct Portable Bridge Plate," as mentioned in your May, 1952 issue. In your July, 1952 issue, there appeared an article on page 10, where Mr. G. Williams of the Bridgeport Brass Co. requested information on storage racks for the purpose of storing tubing. A tearsheet was sent him from the Dec. 1951 issue on the subject. Since we have a similar problem in storing tubing, conduit and steel pipe, would you please send us a tearsheet on the same article.

C. L. Cameron

Long Island Lighting Co.

Tearsheets of both articles have been sent to Reader Cameron.

(TURN TO PAGE 110)

NOVEMBER, 1952 • *FLOW*

Motorola 2-Way Radio

helps save \$18,000 a year at Allis-Chalmers!



Conveniently located base station centralizes dispatching of company vehicles, keeps payloads rolling without costly return trips.



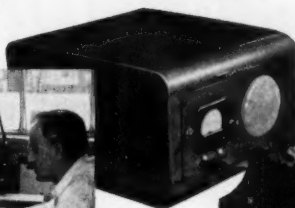
Mobile radio in truck boosts efficiency of pickup and delivery service to warehouse 20 miles away, reduces "dead" mileage.



Mobile unit in truck-tractor enables one driver to handle four large trailers in plant area, eliminates much "waiting" time.



Central Station Console—for control of remote transmitter. Motorola equipment is easy to operate—rugged and reliable—and obsolescence-proof!



Motorola radio dispatching speeds flow of materials, cuts "down" time, increases productive man-hours!

Allis-Chalmers now uses Motorola radio to co-ordinate its entire materials handling system . . . and saves \$18,000 a year in man-hours and machine-time! Two-way radio enables *one* driver to keep four trailers *moving*. Radio contact speeds deliveries . . . cuts waiting time . . . simplifies overall control. Substantial savings in handling costs pay for Motorola radio over and over again!

On *your* job, too, you'll find Motorola is today's greatest value in 2-way radio. Eight exclusive Motorola features guarantee precision selectivity . . . time-tested durability . . . obsolescence-proof design. With Motorola you get simplified operation, rugged construction, outstanding dependability. Motorola engineering puts 24 years of electronics leadership into every custom-tailored installation. So write today—a friendly Motorola engineer in your locality will show you how Motorola 2-way radio can cut your handling costs!

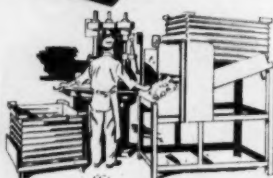
Motorola

Communications & Electronics Division
4545 Augusta Blvd., Chicago 51, Illinois
Rogers Majestic Electronic Ltd., Toronto, Canada

Circle No. 11 on Reader Service Card for more information

**CHECK
THIS**

4-WAY SAVING with Work-O-Matic Boxes!



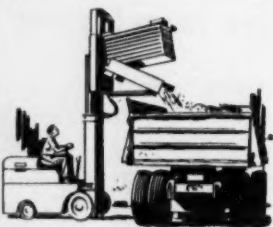
1 POSITIONING MATERIALS

A sure way to cut costs today is work-level positioning of parts-in-process. Work-O-Matic Drop-Bottom Boxes, on Union Metal Positioning Stands, effectively accomplish this. And a reservoir supplies the operator while empty boxes are replaced. Studies prove this 2-way advantage increases production up to 50%!



2 Easier HORIZONTAL MATERIAL MOVEMENT

Work-O-Matic Multi-Duty Boxes are performing all the functions of the best fork tiering skid boxes. In addition, Work-O-Matics allow 3-way fork entry for faster, easier handling in cramped quarters in both the factory and storage areas.



3 Time-Saving MECHANICAL DUMPING

The superior drop-bottom feature of the Work-O-Matic Box, keeps the dumping point constant at any fork height. This permits accurate dumping with 100% control of spillage. Also, Work-O-Matics eliminate the necessity for manual removal of material, releasing labor for more skilled work.



4 Space-Saving STORAGE

Four Work-O-Matic Boxes can be tiered in the space usually required for three ordinary boxes, providing 33% more storage in the same floor space. Thus more parts or materials may be removed from the factory area and stored, ready for the next operation or shipment. Space is conserved in the factory and fully utilized in the storage area.

GET all the facts about Work-O-Matic Drop-Bottom Boxes and Positioning Stands—the amazing new work-and-time savers. Write The Union Metal Manufacturing Company, Canton 5, Ohio.

*Patent No. 2,445,038. Other patents pending.

UNION METAL
Materials Handling Equipment

Circle No. 12 on Reader Service Card for more information

MEN in the news



Robert L. Holt
Bowser Inc.



W. M. Schleicher
Thomas A. Edison
Inc.

... at Bowser Inc.

The appointment of Robert L. Holt as vice president of Bowser, Inc. was announced recently by R. Hosken Damon, president and board chairman. The new vice president has been on the company's board of directors for the past two and one-half years and on the finance committee for the past year and one-half.

... at Thomas A. Edison Inc.

Wallace M. Schleicher has been appointed general sales manager of the Edison storage battery division. Announcement was made by George E. Stringfellow, vice president and division manager. Schleicher has been with the company for 25 years; in the sales engineering department, as sales engineer, and as commercial engineer.

... at American Box Co.

As part of its stepped-up production program, American Box has appointed Glenn E. Maxfield as plant superintendent, according to George H. Kubes, president. Maxfield was formerly superintendent of the Winchendon Mass. plant of General Box Co.

(TURN THE PAGE)

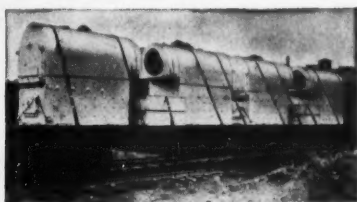
NOVEMBER, 1952 • FLOW

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

Cuts costs on packing, loading, shipping, too!



AWKWARD SHAPES are easy to wrap with Acme Steel strapping. Here it quickly fastens irrigation siphons together, 25 to a package, for convenient handling.



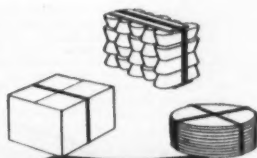
KEEPS BIG BOILERS from throwing their weight around. Acme Steel strapping secures massive loads to railroad flat cars. Strapping is fastened quickly and easily into place, keeps heavy shipments from shifting.



BRACING BARRELS inside a boxcar, Acme Steel strapping saves weight, bulk, and cost of older bracing methods. Barrels themselves are made with Acme Steel hoops.

It doesn't matter how big an object you want to ship. Or how heavy, or awkward, or breakable. One way or another, Acme Steel strapping can help deliver the goods—safe and sound and sure.

In addition to insuring S.A. (Safe Arrival)—and the satisfaction to the shipper and the receiver that goes with it—Acme Steel strapping makes a big contribution in reducing damage losses and cutting damage claims. It also cuts labor and material costs way down. Would you like specific examples? We'll be glad to cite them for you. Write for them to Acme Steel Products Division, Dept. F-112.



**ACME
STEEL**

ACME STEEL COMPANY

2858 Archer Avenue, Chicago 8, Illinois

Circle No. 13 on Reader Service Card for more information

DO YOU HAVE A **Big**
LIFTING
PROBLEM?

Let
MICHIGAN
CRANE AND
CONVEYOR CO.
TAKE A BURDEN
OFF YOUR CHEST!



IMMEDIATE DELIVERY

Precision
Engineered
MICHIGAN
OVERHEAD CRANES

Famous from Coast to Coast for dependability, durability and low cost, every MICHIGAN Crane features such plus-value advantages as anti-friction bearings at all moving points on bridge and trolley, low head room and optional fluid power. What's more, MICHIGAN uses all standard mill parts easily replaceable in any locality, eliminating costly "down time" losses! These are just a few reasons why MICHIGAN is the fastest growing producer of cranes in America! Write today for informative literature and specification sheets.

We Also Supply
CONVEYORS, HOISTS,
MONORAILS, TROLLEYS,
COMPLETE ACCESSORIES

MICHIGAN
CRANE & CONVEYOR CO.
115 MCKINSTRY AVENUE
DETROIT 9, MICHIGAN

Circle No. 14 on Reader Service Card for more information

MEN IN THE NEWS . . .



W. C. Portman
Chas. Wm. Doepke
Mfg. Co., Inc.



Jack E. Burch
Rotary Lift Co.

. . . at Charles Wm. Doepke Mfg. Co., Inc.

William C. Portman has joined the company as sales manager of the NesTier division. Announcement of the appointment was made by F. W. Doepke, vice-president in charge of sales. In his new position, Portman will supervise sales of NesTier material handling equipment. He was formerly vice-president of the Flow Equipment Co.

. . . at Rotary Lift Co.

A new division to specialize in hydraulic lifts for industrial uses has been announced by Hugh Allan, president. Head of the new division is Jack E. Burch, sales manager. Formerly, Burch was division manager for Rotary in St. Louis.

. . . at Yale & Towne Mfg. Co.

Separate sales departments have been established for the company's Worksaver and hand lift truck product lines. James H. W. Conklin, general sales manager announced the promotion of John I. Somers as sales manager for Worksaver electrically-operated hand lift trucks, and T. F. Moriarity as sales manager for manually-operated hand lift trucks.

. . . at Lull Mfg. Co.

Charles Strauch has been appointed sales promotion manager, according to an announcement by L. H. Lull, president. Strauch

*25 Good reasons for choosing the Mercury "Jeep"

130" fork elevation with standard 83" collapsed height.	Inclined automotive steer with Ross cam and twin lever gear.	Fully enclosed, high capacity, directly attached drive motor.	"Picture-frame" visibility — unobstructed operator vision.
59½" of free lift with standard 83" collapsed height.	Foot pedal acceleration — reversing lever on steering column.	Simple, single (non-telescopic) hoist cylinder assembly.	Hydraulic overload protection.
60" turning radius — right angle stack in 8' aisle with 32" load.	Convenient hoist and tilt controls for easy operation.	Choice of solid or cushion type tires for both drive and trail.	A single, double-acting tilt cylinder.
Full floating drive — tapered roller bearing mounted wheels.	Castor type trailing axle with shockless, center point steering.	Heavy counterweighting to insure full stability.	Efficient — lowest watts per ton miles per hour performance.
Mercury patented cross-suspension of lifting carriage.	Double reduction, spiral bevel and spur gear drive.	Electrical and mechanical limits for both lift and tilt.	Unit assembly throughout — maximum maintenance accessibility.
Low pressure hydraulic system — efficient, leak proof.	Magnetic contactor travel control.	Operator seat inter-locked with controller and brake.	Wide tread for maximum stability — advantageous in high tiering.

Each of the MERCURY features listed above answers a specific problem... in installation... mechanical efficiency... and ease and safety of operation. Together they support the impressive record the "Jeep" is establishing in industry every day... for efficiency and cost cutting performances. Before you commit for any fork truck... get the complete story on the MERCURY "Jeep."



MERCURY MANUFACTURING CO., 4154 So. Halsted St., Chicago 9, Ill.

Circle No. 15 on Reader Service Card for more information

FLOW • NOVEMBER, 1952

Bulletin-295 illustrates and completely describes the many outstanding features of the MERCURY "Jeep." Request your copy.

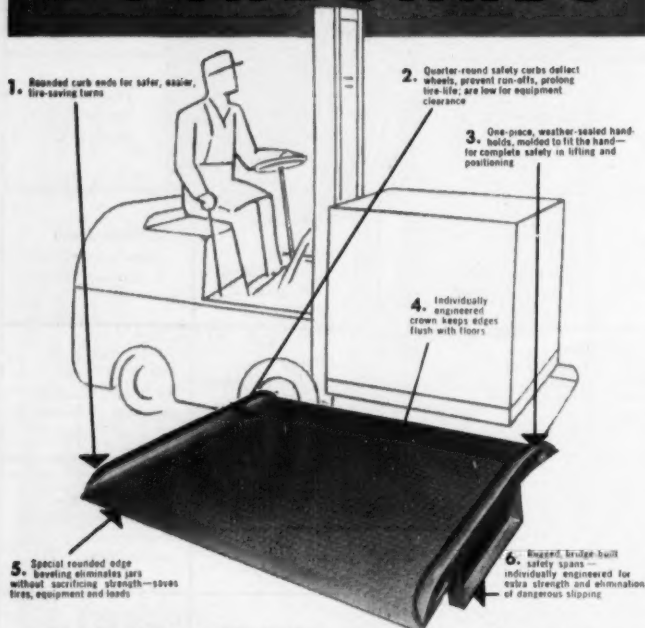


MERCURY MANUFACTURING COMPANY
4154 So. Halsted St., Chicago 9, Illinois

- ☐ Have a representative call.
☐ Send copy of Bulletin-295 illustrating and describing the MERCURY "Jeep."

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

You can SEE Exclusive Money-Saver Features in MAGCOA light-weight HEAVY-DUTY DOCKBOARDS



Light-weight HEAVY-DUTY Magnesium Construction

($\frac{1}{4}$ the weight of steel) with resulting increases in efficiency and safety . . . individually engineered for your requirements . . . long life that you can take for granted; these are the other money-saver features that make Magcoa Dockboards a good investment right from the start and your best investment in the long run.

Write today for literature showing why many leading companies standardize on Magcoa Dockboards for freight car and truck loading, how they benefit . . . and how you can, too. At the same time, ask for new literature showing how Magcoa's magnesium fabricating experience and facilities can help you improve your products through use of light-weight, heavy-duty magnesium. Use the handy coupon.

MAGNESIUM COMPANY OF AMERICA

EAST CHICAGO, INDIANA — Representatives in Principal Cities



DIVISION OFFICES:

NEW YORK 26,
30 Rockefeller Plaza
PHILADELPHIA 18,
801 Southampton Ave.
WASHINGTON 1, D.C.,
Marine Bldg.
HOUSTON 17,
7817 Main St.
LOS ANGELES 24,
311 W. 4th St.
SAN FRANCISCO 4,
Rosa Bldg.

MAGNESIUM COMPANY OF AMERICA, East Chicago 1, Ind.

Please send ☐ Dockboard Bulletin ☐ Fabrication Folder

Name _____ Title _____

Company _____

Address _____

City _____ Zone _____ State _____

Circle No. 16 on Reader Service Card for more information

MEN IN THE NEWS . . .



F. W. Hartlage
Lull Mfg. Co.



Charles Strauch
Lull Mfg. Co.

was formerly advertising manager. His new post is a newly-created one caused by company expansion and enlarged business activities.

Fred W. Hartlage has been promoted to succeed Strauch as advertising manager. He will be responsible for directing the advertising activities of Lull, including national, regional and direct mail advertising as well as publicity activities.

David Hansen has joined the company in the capacity of assistant sales manager. He was formerly employed by the J. I. Case Co.

. . . at Goodyear Tire & Rubber Co.

Donald H. Walker has been named assistant treasurer, succeeding Harry W. Hillman, who was recently elevated to controller, it was announced by P. E. H. Leroy, vice president in charge of finance.

Val L. Follo has been named the company's factory manager, according to T. A. Knowles, vice president and general manager. C. H. Zimmerman has been appointed to guide the company's increased and intensified production program in the wheel and brake, rocket and Wingfoot Lake divisions.

Marvin Huffman has been appointed acting superintendent of tire production in plant two, replacing Val Follo.

William F. Gerrow, Jr., field sales representative of Goodyear's chemical division has been assigned to the Atlanta, Georgia office of the division.

(TURN THE PAGE)

NOVEMBER, 1952 • FLOW

DODGE
SOLID STEEL CONVEYOR PULLEYS



So-o much Simpler!

DODGE

of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Equipment" in your classified telephone directory.



- The pulley for *modern* belt conveyors.
- Drum type construction provides maximum strength with minimum weight.
- Interchangeable hubs simplify installation, positioning, removal—insure better conveyors at *less* cost.
- Accurately formed. Uniform rim thickness. Fully enclosed—to exclude dust, dirt, water.
- Diameters 6 in. to 8 ft., all face widths. Popular sizes stocked by our distributors.

DODGE MANUFACTURING CORPORATION
2300 Union Street, Mishawaka, Indiana

FIRST
IN POWER TRANSMISSION
MACHINERY!



WHEELS AND TAPER-LOCK SHEAVES



TORQUE-ARM SPEED REDUCERS



DODGE-TINKLER PILLOW BLOCKS



ROLLING GRIP AND DIAMOND D CLUTCHES

NAME PLATE

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY,
CHICAGO THRIFT-ETCHING CORPORATION, 1535 SHEFFIELD AVENUE, CHICAGO, ILLINOIS
Circle No. 17 on Reader Service Card for more information

*Do more jobs
faster...Safer with...*

BUDA FORK TRUCKS and attachments

LOAD
SAFETY RACK



CLAMPS



BRICK AND
CONCRETE
FORKS



RAM



FORK
EXTENSIONS



SCOOP



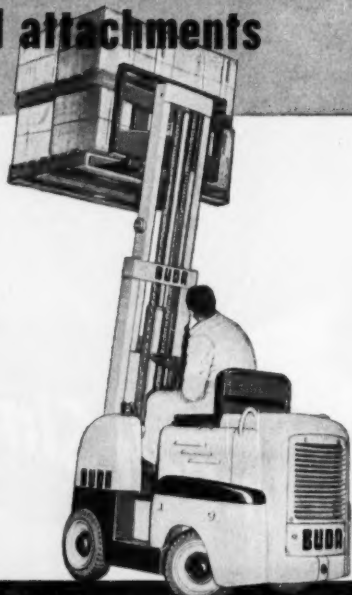
OVERHEAD
GUARD



CRANE ARM



SIDE
SHIFTER



14 MODELS... CAPACITIES TO 7,500 LBS.

**POWERED BY HEAVY-DUTY INDUSTRIAL
BUDA DIESEL OR GASOLINE ENGINES**

Never before have you been able to get more handling efficiency, lower operating costs, less maintenance, greater safety, and long useful life than are now offered you by the Buda FT Series fork lift trucks. Completely new—from their special section mast down to the reinforced "U" channel frame, Buda "FT" Series embody the most advanced engineering, functional design and modern styling. Powered by heavy-duty industrial Buda Diesel or gasoline engines.

Equipped with a wide variety of attachments to save time and cut costs on many special handling jobs, Buda "FT" Series Fork Trucks may very well be the answer to your material handling problems.

Don't overlook the additional advantages of Buda Diesel power as explained in Bulletin 1570. Write for it today. See your nearby Buda Distributor for complete details and demonstration.

The Buda Company, Harvey, Illinois.

BH-41-A

The Line With All 3 for Diversified Handling

BUDA



TOWING
TRACTORS



CHORE BOYS



FORK TRUCKS

Manufacturers of Material Handling Equipment, Lifting Jacks, Maintenance of Way Products, Earth Drills and Diesel and Gasoline Engines
Circle No. 18 on Reader Service Card for more information

MEN IN THE NEWS . . .

. . . at Pittsburgh Steel Products Co.

Fred L. Etchen has been appointed district sales manager of the Detroit office. He succeeds John M. Leahy who will continue as an agent for the company in the sale of material handling equipment. Previously, Etchen was material handling sales engineer for the company, covering Michigan, Indiana, and Ohio.

. . . at General Tire & Rubber Co.

Robert Moran has been named manager, special purpose tire department. His former post, in replacement sales, industrial tires, will be taken over by David G. Gehring. Announcement was made by Karl A. Dalsky, manager, commercial tire sales. Gehring will also continue to handle replacement sales of farm tractor and implement tires.

. . . at Yale & Towne Mfg. Co.

The official retirement of Floyd A. Dewey, Chicago regional sales manager for Yale hoisting equipment, was announced by Carl O. Hedner, hoisting equipment sales manager.

. . . at Motorola

Daniel E. Noble, vice-president of Motorola's communications and electronics division has announced the promotion of Harold A. Jones to the newly created position of Manager, Technical information center. In his new capacity, Jones directs production and distribution of all technical publications covering the sales promotion, sales training, public relations and service activities of the division.

(TURN TO PAGE 118)

NOVEMBER, 1952 • FLOW

Highlights Of The Month's News . . .

In the not-too-distant future, you may be using atomic-powered industrial trucks. At the recent Iron & Steel Exposition in Cleveland, B. I. Ulinski, director of engineering, Automatic Transportation Co., voiced the opinion that atomic propulsion of trucks will be only one of many engineering advances which will come to pass in the next few years.

Just think of the impact of such a development when and if it comes to pass. Heavier and bigger loads could be handled by lighter equipment which will probably require less space in which to operate. With the coming of atomic power, it is conceivable that you will be able to buy a truck and operate it for years without ever having to spend a cent on fuel.

• • •

We have to be careful of what we say in this column. Several issues ago, we listed a few articles for which we had reprints, asking that you write in if you wanted copies. We've been swamped with requests.

The overwhelming reaction was good for our ego however, so this month we are listing more reprints we think you will want.

- (1) "Floor Load Capacity and Its Relation to Industrial Power Trucks."
- (2) "15 Ways to Ship Your Products."
- (3) "How to Sell Management on Material Handling."
- (4) "Handling Liquids is Material Handling."
- (5) "2-Way Radio Triples Truck Load Hours."

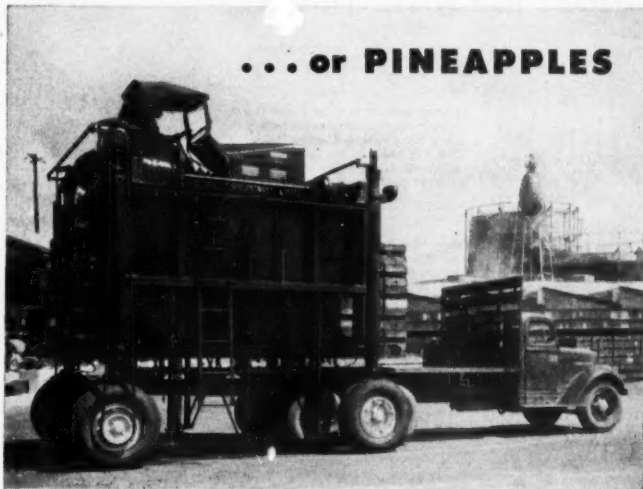
They're free—just drop the Editors a note specifying which articles you would like, and copies will be sent you.

FLOW • NOVEMBER, 1952

Maybe your business isn't
LUMBER . . .



. . . or PINEAPPLES



BUT . . . just imagine the savings you could make, the problems you could solve by handling your materials with ROSS Straddle Carriers, the most flexible and most adaptable mass material handling method known!

ROSS engineers will be glad to work with your materials handling men in exploring the possibilities of ROSS Straddle Carriers for your operations . . . there's no obligation.

Send for details on ROSS Straddle Carriers . . . 10,000 lb., 20,000 lb., 35,000 and 45,000 lb. capacities.



THE ROSS CARRIER COMPANY

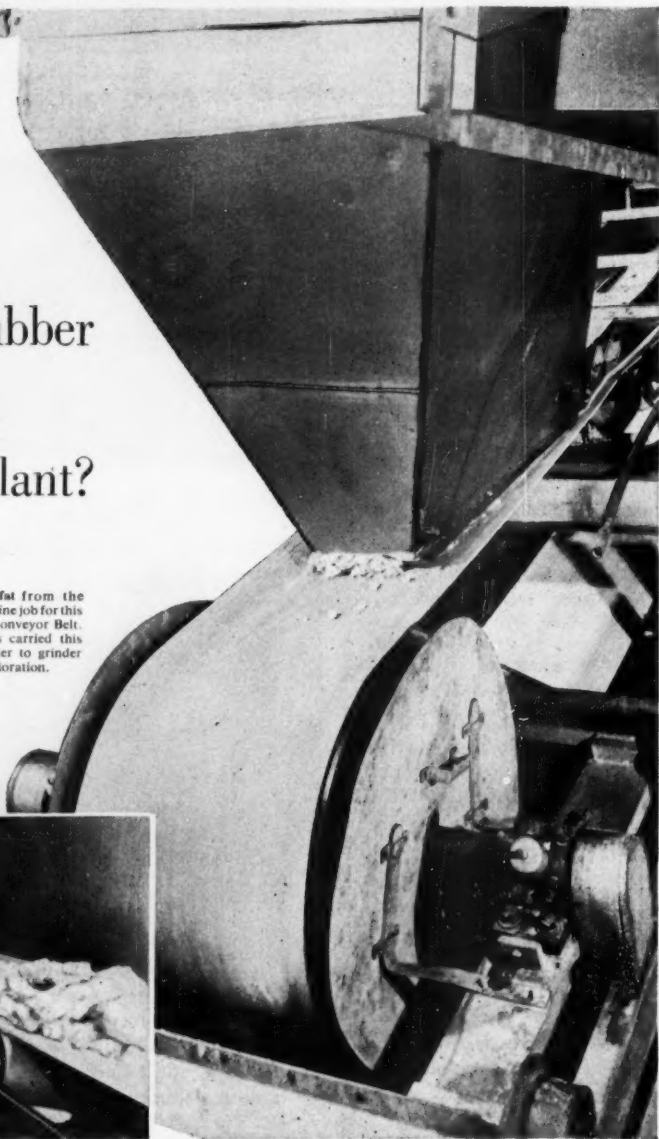
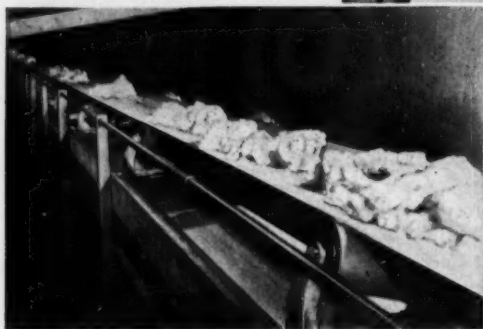
Direct Factory Branches and Distributors throughout the world.
280 Miller St., Benton Harbor, Michigan, USA

Circle No. 19 on Reader Service Card for more information

What's U.S. Rubber doing in a meat packing plant?

Taking stripped beef fat from the hopper above is a routine job for this U. S. Meat Packers Conveyor Belt. For 1½ years it has carried this edible fat from washer to grinder without sign of deterioration.

Section of 400-foot U.S. Meat Packers Belt, shown on way to discharge point, is especially designed to withstand destructive action of fats and 180-degree hot water baths. It's extremely sanitary, odorless, non-toxic, washes easily and imparts no flavor to product conveyed.



Doing the job better than before is the axiom of U.S. Rubber belting engineers. Here they studied every operating condition before developing the belt illustrated. It replaced a metal belt which required considerable upkeep and was dangerous to the workers. These same engineers can do a similar job for you, whatever the installation. Next time you need conveyor belts, contact them at the address below.

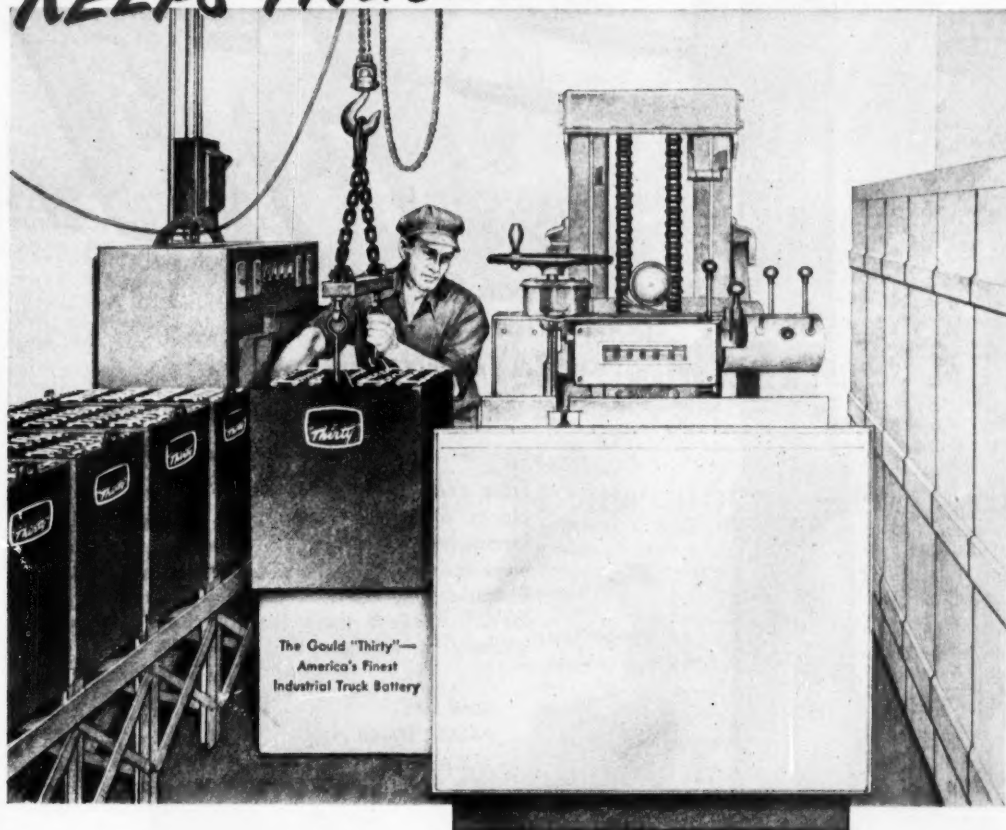
PRODUCT OF



UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Circle No. 29 on Reader Service Card for more information

SYSTEMIZED BATTERY CARE *KEEPS TRUCKS ON THE GO!*



Nothing will keep your electric industrial trucks in continuous operation like a well-organized system of battery maintenance. And nothing can give you such a system like the Gould Plus-Performance Plan. Here is a complete library of technical information that tells how to select, charge, handle, maintain, and determine the condition of lead-acid batteries, regardless of make. Use it to systemize battery care and you'll cut downtime, maintain production schedules and extend battery service. It's free. Write Gould Battery Information Headquarters.



GOULD

Industrial Batteries

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries

3 YEARS AGO

made 6 FT.

Today you can
choose from the **COMPLETE LINE**
of **RAYMOND Electric Trucks**

Enjoy unbelievable savings
... in dollars and space

From coast to coast, from Canada to the Gulf, plants and warehouses have hailed these performance-proved RAYMOND Trucks! Because they were the first rider trucks to operate in 6 ft. aisles. Because they increase storage space as much as 50%. Because these trucks were designed specifically for riding.



STRADDLE TYPE TIERING TRUCK

Right angle tiers 48" pallets from 6' wide aisles. Travels 3½ mph loaded, 4 mph empty. Cap. 2,000 and 3,000 lb. Telescopic and Non-telescopic models.



LOW-LIFT PALLET TRUCK

A fast mover for long hauls, stock picking, loading, unloading. Travels 5 mph loaded, 6 mph empty. Cap. 4,000 lbs.



LOW-LIFT PLATFORM TRUCK

Cap. 4,000 lbs.

Spots loads right at machines—also suitable for storage area and loading dock use. Travels 5 mph loaded, 6 mph empty.

MAIL COUPON ➡

NOW...

YOU CAN SEE FOR YOURSELF

... the almost unbelievable advantages which RAYMOND Electric Trucks offer! It's easy to do—simply fill in and mail the coupon at the right to arrange a demonstration. Be sure to ask for Bulletin 703—it gives you full details on RAYMOND Electric Trucks.

Circle No. 22 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

THIS RAYMOND TRUCK

AISLES are reality

• OPERATES IN AISLES 6 FT. WIDE or LESS

RAYMOND Trucks actually operate in warehouse or production-floor aisles 6 ft. wide or less thanks to their short length and patented* off-set drive wheel with 200° turning arc.

• GIVES up to 50% MORE STORAGE SPACE

RAYMOND Tying Trucks trim from 4 to 6 ft. off conventional truck aisles—increase your storage capacity by as much as 50%.

• RUGGEDLY BUILT . . . YET LIGHT-WEIGHT

RAYMOND Trucks are ruggedly-built for round-the-clock use, yet weigh less because they have no counterweight and feature balanced design. Thus, they operate safely on low-capacity elevators and floors, conserve battery power.

• 45½" FREE LIFT for TRUCK, BOXCAR USE

RAYMOND Tying Trucks elevate loads as high as 45½" without increasing the truck's overall height. This permits tying with safety in low-ceiling areas or in boxcars, truck trailers, etc.

• USES STANDARD 12 VOLT BATTERY

No special batteries required for RAYMOND Trucks—they operate on standard 12 volt batteries. What's more, battery is easily changed—it slides out on built-in rollers.

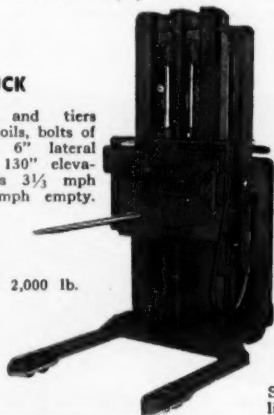
• 2" UNDERCLEARANCE PREVENTS SLOW-DOWNS

RAYMOND Trucks have 2" underclearance, plus patented* knee-action swivel casters. Both help to compensate for uneven floors, door sills, dock boards and insure 4-point suspension at all times.

RAM TRUCK

Transports and tiers rugs, steel coils, bolts of cloth. Has 6" lateral movement, 130" elevation, travels 3½ mph loaded, 4 mph empty.

Cap. up to 2,000 lb.



The COMPLETE RAYMOND LINE operates in 6-Ft. wide aisles

PLATFORM TYPE TIERING TRUCK

Brings raw materials, stores finished parts, transfers dies. Travels 3¼ mph loaded, 4 mph empty. Cap. 2,000 and 4,000 lb.

SEMI-LIVE SKID TRUCK

Speeds handling of semi-live skids. Travels 4½ mph loaded, 5 mph empty. Cap. 2,000 lb.



* Patent No. 2,564,002



ELECTRIC INDUSTRIAL TRUCKS
HYDRAULIC ELEVATING EQUIPMENT

The RAYMOND CORPORATION

3303 Madison St., Greene, N.Y.

- () You bet I want a demonstration—please arrange one at my convenience!
() Send me Bulletin 703, describing RAYMOND Electric Trucks.

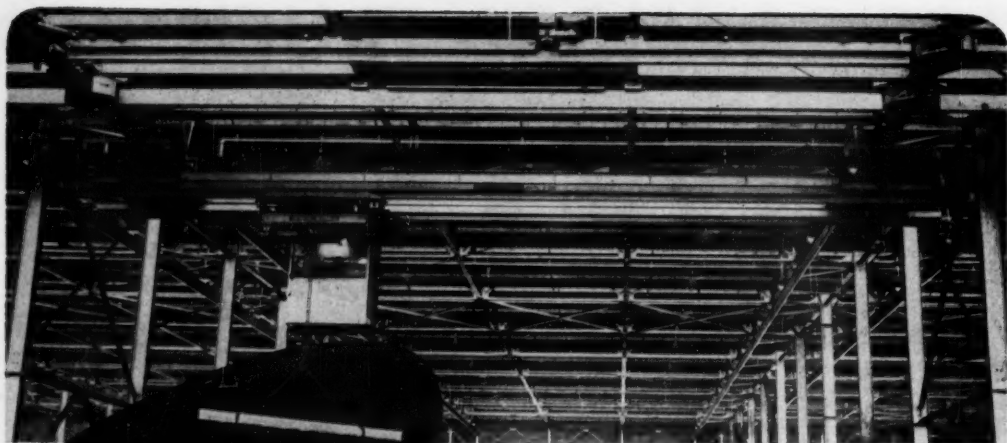
NAME _____ TITLE _____

COMPANY _____

STREET _____

CITY _____ STATE _____

Circle No. 22 on Reader Service Card for more information

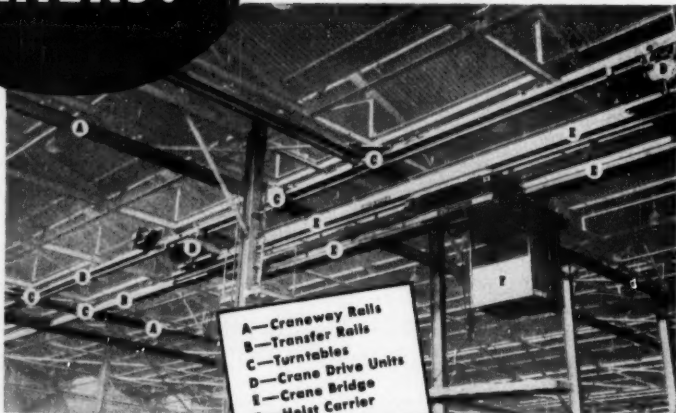
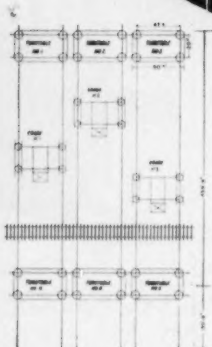


A CRANE *that* TURNS *the* CORNERS!

Imagine a crane that shifts from its craneway to another via 90° turntable—then shifts again at 90° to travel another craneway. It's like driving a car to the middle of an intersection, then instead of just the front wheels turning, all wheels turn at a right angle and the car travels sideways down the side street.

This crane offers fast hoist hook service throughout maximum areas without load transfer from original pick-up.

An American MonoRail engineer will gladly tell you now about its application.



- A—Craneway Rails
- B—Transfer Rails
- C—Turntables
- D—Crane Drive Units
- E—Crane Bridge
- F—Hoist Carrier

THE AMERICAN **MONORAIL** COMPANY

13129 ATHENS AVENUE

CLEVELAND 7, OHIO

Circle No. 23 on Reader Service Card for more information

THE IMPROVED Exide-Ironclad BATTERY

GIVES you more... SAVES you more

It gives you more of everything that adds up to top performance, long battery life... saves you more through low over-all costs. Outstanding new features, including the polyethylene insulating tube sealer, *more than ever before*, make Exide-Ironclad YOUR BEST POWER BUY... AT ANY PRICE.

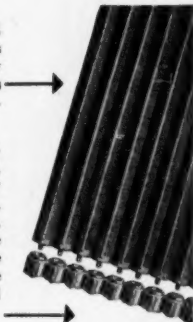
HERE'S WHAT YOU GET

Rapid, accurate handling...
Uniform rate of handling...
High availability... Low operating costs...
Low maintenance costs... Low depreciation costs...
High maneuverability... Safe handling

AND HERE'S WHY

IMPROVED POSITIVE PLATE CONSTRUCTION. The long-life grids now contain SILVIUM—an alloy of silver, lead and other components—which make them highly corrosion-resistant.

NEW POLYETHYLENE INSULATING TUBE SEALER of acid-proof, non-corroding plastic. It fits snugly into slotted tubes of positive plates, and reduces loss of active material. Even the small sediment deposit of the past is reduced 50%. Thus more active material remains available, and the high battery capacity is maintained for a longer working life.



PLUS THESE EXTRAS

IMPROVED NEGATIVE PLATES for higher electrical efficiency.

NEW SEALING COMPOUND provides permanent seal between jar and cover.

SEAMLESS SHOCK-PROOF JAR, of high quality rubber, combines tensile strength and elongation for long-life and heavy-duty service.

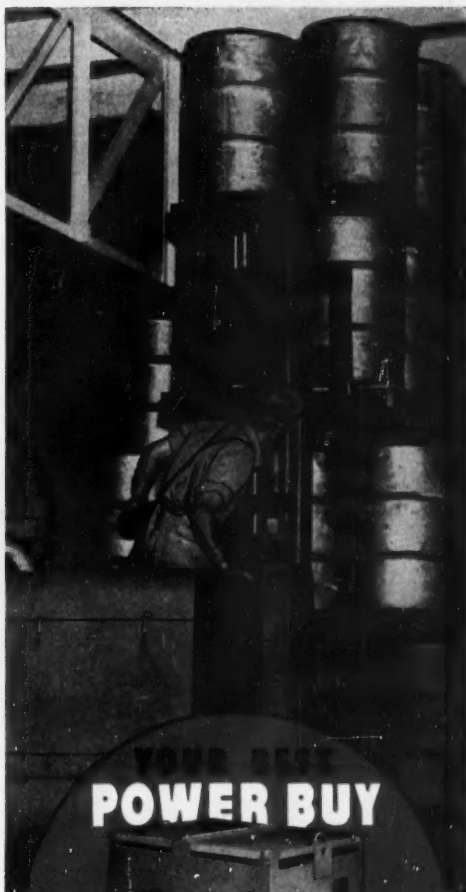
NEW UNBREAKABLE PLASTIC VENT PLUGS of polyethylene.

TYPES, SIZES AND CAPACITIES for all kinds and makes of battery-electric trucks—hand and rider.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 2

Exide Batteries of Canada, Limited, Toronto
1888

DEPENDABLE BATTERIES FOR 64 YEARS
1952



YOUR BEST
POWER BUY



AT ANY PRICE

"EXIDE-IRONCLAD" and "SILVIUM" Reg. T.M. U.S. Pat. Off.

Circle No. 24 on Reader Service Card for more information

Now Increase your Storage Space 40-50%

...with New Lewis-Shepard Trucks
designed for
narrow aisle operation



EXTRA
STORAGE SPACE

MAXIMUM AISLE REQUIRED
BY NEW L-S TRUCKS - 6'

NORMAL AISLE
REQUIRED BY
FORK TRUCKS - 10' to 12'



New Spacemaster® Model "M"

In both High and Low Lift models, the Spacemaster Model "M" makes possible right angle stacking in less than 6 foot aisles*. This means the usual 10 to 12 foot aisles can be reduced at least 40%, and the extra space converted to storage area. Moreover, the Model "M" has only half the weight of ordinary electric fork trucks . . . can be used where floor load capacities previously have been insufficient. And, it's priced low — costs only half as much as standard electric fork trucks!

These space, weight, and dollar savings are made possible by the unique design of the Model "M". With Articulated Linkage, an exclusive L-S feature, the load is carried by the entirely separate load carrying frame and supported at four points including 2 stabilizing casters. This rugged integral unit, designed for the heaviest kind of duty, provides top stability at high fork elevation. It is connected to the drive unit by parallel links assuring uniform loading on the power gear drive, steering mechanism and power controls whether loaded or empty. Traction is uniform, steering easier and maintenance reduced.

*With 48" long loads on high lift models.
With 48" long loads on platform type low lift.
Pallet type low lift will require 6'6" aisles with 48" long load.

Here's your choice
for less than
6' aisle operation



High Lift
SPACEMASTER
Model "M"
Capacities: 3,000 — 4,000 lbs.
Straddle, Platform and Open
Face Pallet types.



Low Lift
SPACEMASTER
Model "M"
Capacities: 4,000—6,000 lbs.
Pallet and Platform types.

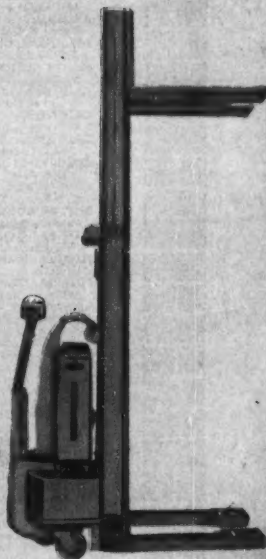
New Jackstacker® and Jacklift® Electrics

The latest models of these "walkie" type trucks — pioneered by Lewis-Shepard — in addition to operating in less than 6' aisles, have many new improvements that give you faster, smoother, more dependable operation:

- New traction motor gives controlled speed on level floors, plus reserve power for grades.
- New timed acceleration eliminates jumps and jerks . . . every load rides safe and smooth.
- New powerful electric brakes assure instant, cushioned stops.
- Only 2 greasing points (none on some models). Saves many hours of maintenance duration.



JACKSTACKER
Electric Trucks,
Non-Counterbalanced
Capacities: To 6,000 lbs. Straddle,
Platform and Open Face Pallet types.



JACKLIFT
Electric Trucks
Capacities: To 6,000 lbs.
Platform and Pallet types.



For complete information on these Lewis-Shepard Trucks — just fill in the coupon and mail it today.

LEWIS-SHEPARD Products, Inc.
94 Walnut St., Watertown 72, Mass.
Please send me complete information on
LS trucks for narrow aisle operation.

Name _____
Company _____
Street _____ State _____
City _____

LEWIS-SHEPARD®

Nationwide Service — See "Trucks, Industrial" in your Yellow Phone Book.

CLARK

MATERIALS HANDLING EQUIPMENT

AUTHORIZED SALES AND SERVICE

This is the SIGN of your BEST-BUY LINE

—and it marks your BEST source of Materials Handling Service—Service that encompasses Technical Counsel, Plant Surveys, Operator Training and Engineering as well as expert Maintenance and Repairs. Look with confidence to CLARK's nation wide organization of Authorized Sales and Service Dealers.

ALABAMA: BIRMINGHAM

M-H Equipment Company

ARIZONA: PHOENIX

Robert H. Braun Company

ARKANSAS: LITTLE ROCK

Bigelow Robinson Co.

BRITISH COLUMBIA: VANCOUVER

National Machinery Company, Ltd.

CALIFORNIA: FRESNO 1

Robert H. Braun Company

CALIFORNIA: LOS ANGELES 22

Robert H. Braun Company

CALIFORNIA: OAKLAND 3

Glen L. Codman Co., Inc.

COLORADO: DENVER

J. N. Meade

CONNECTICUT: NEW HAVEN 15

C. E. Reutter Corporation

DIST. OF COLUMBIA: WASHINGTON

Fallspring Spring & Equipment Co.

FLORIDA: JACKSONVILLE

Whitmore Industrial Trucks

FLORIDA: MIAMI

EquipCo, Inc.

FLORIDA: TAMPA

Whitmore Industrial Trucks

ILLINOIS: CHICAGO 4

Modern Handling Equipment, Inc.

INDIANA: EVANSVILLE 13

W. A. Marschke & Sons, Inc.

INDIANA: INDIANAPOLIS 5

W. A. Marschke & Sons, Inc.

INDIANA: SOUTH BEND 14

Materials Handling Equipment Corp.

IOWA: DAVENPORT

Big River Equipment Company, Inc.

IOWA: DES MOINES

Big River Equipment Company, Inc.

KENTUCKY: LOUISVILLE 7

W. A. Marschke & Sons, Inc.

LOUISIANA: NEW ORLEANS

Industrial Truck & Caster Co., Inc.

MAINE: PORTLAND

Brodie Industrial Trucks, Inc.

MANITOBA: WINNIPEG

J. H. Ryder Machinery Co., Ltd.

MARYLAND: BALTIMORE 6

Fallspring Spring & Equipment Co.

MASSACHUSETTS: BOSTON (Malden 48)

Brodie Industrial Trucks, Inc.

MICHIGAN: DETROIT 2

Material Handling Sales Corp.

MICHIGAN: GRAND RAPIDS

Material Handling Sales Corp.

MINNESOTA: MINNEAPOLIS 7

Material Handling Engineers

MISSOURI: KANSAS CITY 8

Lift Truck Sales & Service, Inc.

MISSOURI: ST. LOUIS 8

Materials Handling Equipment Corp.

NEW JERSEY: UNION

Hull Equipment Co.

NEW YORK: ALBANY

Rushmore, Weber & Co., Inc.

NEW YORK: BUFFALO 2

Brodie Industrial Trucks, Inc.

NEW YORK: NEW YORK 14

Bond Industrial Equip. Sales Co., Inc.

NEW YORK: SYRACUSE 2

Brodie Industrial Trucks, Inc.

NORTH CAROLINA: GREENSBORO

Industrial Truck Sales & Service Co.

NORTH DAKOTA: FARGO

Sweeney Brothers Tractor Co.

OHIO: CINCINNATI 15

Robert C. Young & Co.

OHIO: CLEVELAND 11

Material Handling Equipment Corp.

OHIO: COLUMBUS

Edward J. Sherry Co.

OHIO: TOLEDO 4

Kern Truck Sales, Inc.

OKLAHOMA: TULSA 6

Art Equipment Company

ONTARIO: FT. WILLIAM

J. H. Ryder Machinery Co., Ltd.

ONTARIO: TORONTO 5

J. H. Ryder Machinery Co., Ltd.

ONTARIO: WINDSOR

J. H. Ryder Machinery Co., Ltd.

OREGON: EUGENE

Preston Fuller

OREGON: PORTLAND 5

Preston Fuller

PENNSYLVANIA: HARRISBURG

Furnival Machinery Co.

PENNSYLVANIA: PHILADELPHIA

Furnival Machinery Co.

PENNSYLVANIA: PITTSBURGH 33

Material Handling, Inc.

QUEBEC: MONTREAL 9

J. H. Ryder Machinery Co., Reg.

SOUTH CAROLINA: COLUMBIA

Lukas Equipment Co.

SOUTH DAKOTA: SIOUX FALLS

Stan Houston Equipment

TENNESSEE: KNOXVILLE

Dempster Bros., Inc. (LTD.)

TENNESSEE: MEMPHIS

Fred J. Vandemark Co.

TERITORY OF HAWAII: HONOLULU

Pressed Steel Car Co., Inc.

TEXAS: DALLAS

T. G. Froese

TEXAS: HOUSTON 25

T. G. Froese

UTAH: SALT LAKE CITY

Albert J. Isaacson Company, Inc.

VIRGINIA: NORFOLK

Wilson Industrial Equipment, Inc.

WASHINGTON: SEATTLE

Preston Fuller

WASHINGTON: SPOKANE

Preston Fuller

WISCONSIN: GREEN BAY

Wisconsin Industrial Truck Co., Inc.

WISCONSIN: MILWAUKEE 10

Wisconsin Industrial Truck Co., Inc.

Association and Society News

• "What's New in Packaging and Material Handling", was the title of a talk presented to the Wisconsin chapter of the Industrial Packaging and Material Handling Engineers at their most recent meeting by R. F. Weber. Weber, one of the founders, first president and board chairman of the society, is in charge of packaging and material handling research for International Harvester. He is also a member of the government packaging board.

• The Cleveland chapter of the American Material Handling Society will hold a joint meeting Wednesday, November 19, with the Cleveland chapter of the Industrial Packaging and Material Handling Society. W. W. Phillips, manager of raw material handling at Eli Lilly & Co., will speak on the broad subject, "Packaging and Material Handling".

• Co-sponsors of the second Biennial Packaging and Material Handling Institute in Los Angeles were: University of Southern California; The American Society of Mechanical Engineers; Los Angeles Chamber of Commerce; The Material Handling Association of Southern California; Society for the Advancement of Management; Society of Industrial Packaging and Material Handling Engineers; Western Industry Magazine. The two-day event consisted of talks by experts in the fields of material handling and packaging and shipping.

INDUSTRIAL TRUCK DIVISION

CLARK EQUIPMENT COMPANY

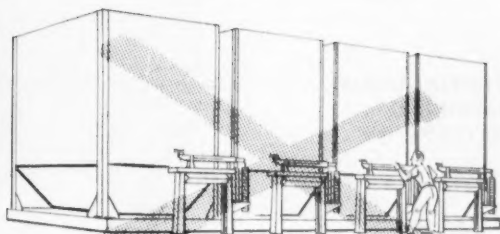
BATTLE CREEK, MICHIGAN

Circle No. 26 on Reader Service Card for more information

(TURN TO PAGE 95)

NOVEMBER, 1952 • FLOW

**Weigh
any hopper
anywhere in
your plant
from ONE
location**



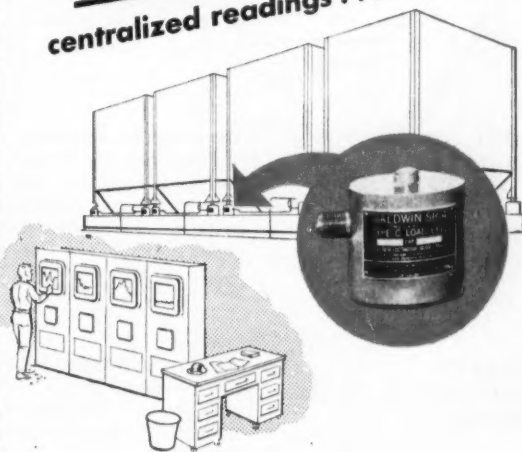
**ELIMINATE
individual scales . . .**

With Baldwin SR-4® Load Cells you can completely eliminate the inefficient and troublesome use of the ordinary poise, lever and knife-edge weighing systems. Corrosion and accumulation of foreign material will no longer affect accuracies . . . cleaning problems will be simplified. Instead of taking readings at each hopper . . . you will be able to weigh many hoppers from *one* central control booth.

Only a few inches in height, these Baldwin SR-4® Load Cells are rugged, dependable, completely sealed and can be located under existing hopper supports. The load cell has no appreciable movement and operates recorders, indicators, printers or control instruments through simple electrical circuits.

For complete technical information, write for Bulletins 306, 325, 326 and 328 describing Baldwin Load Cells, pressure cells and torque meters.

**MODERNIZE with
centralized readings . . .**



BALDWIN-LIMA-HAMILTON

TESTING HEADQUARTERS

Eddystone Division, Baldwin-Lima-Hamilton Corporation

Philadelphia 42, Pa.

In Canada: Peacock Bros., Ltd., Montreal, Quebec

Circle No. 27 on Reader Service Card for more information

NEWS VIEWS TRENDS

WESTINGHOUSE HANDLING CONFERENCE

The fourth biennial material handling conference, sponsored by the Westinghouse Electric Corp., was held in Buffalo, Oct. 28 and 29. It dealt mainly with advanced techniques of material handling both from the application and design viewpoints, and featured speakers from leading material handling equipment manufacturers.

OLIVER BUYS "BLACK VELVET"

The Oliver Corp., Chicago has purchased all resources and facilities used by Carter Industries in the manufacture of "Black Velvet" gravity conveyors. A. King McCord, president of Oliver, said that production and merchandising of the newly acquired line will be integrated into the business of the company's Farquhar Division at York, Pennsylvania.

KEEPING CONVEYORS IN STEP

The growth of electronic controls for synchronizing conveyors through timed processes is traced in this issue by Stephen W. Jessop, Jervis B. Webb Co. Advantages of good control, and places where they should be used are discussed. Anyone using complicated conveyor systems will profit from reading this article. It's one you won't want to miss.

SAFE TRANSIT PROGRAM GROWS

The American Standards Association has offered its services and facilities to the National Safe Transit Program. It is the 19th association to give its support to a voluntary and cooperative movement by industry, carriers, and container manufacturers to reduce damage to products in transit. The program now has 111 leading manufacturers participating. Sponsor is the National Safe Transit Committee and the Porcelain Enamel Institute.

SERVES INDUSTRIAL TEAM IN ITALY

A. Edward Aukens, a Consultant on Material Handling Methods operating from headquarters in Bay Village, Ohio, for several years, has contracted with the U. S. Government for a 2-year engagement in Italy. He is to be the industrial engineer on a team of three which will survey industrial plants in that country, aided by a large staff of specialists from the U. S. in the performance of special services where needed. The activity is a function of The Mutual Security Agency of the State Department.

NEW HYSTER ADDRESS

Transfer of the industrial truck sales and service departments of Hyster Co.'s eastern division to Danville from Peoria, Illinois has been announced from Hyster's general office in Portland, Ore. The new sales offices are housed in a newly-completed office building adjacent to the manufacturing plant.



**WHEN YOU NEED NEW TIRES
FOR YOUR LIFT TRUCKS**

Call your truck distributor

● When you entrust your lift truck repairs to your truck distributor, you know the finished repair job will be complete and satisfactory. But, how about new tires? Your truck distributor can re-equip your trucks with tires, too! He knows what's best for your trucks . . . that's why he stocks **Monarch Mono-Cushions**. Place all your truck service under one roof . . . let your truck distributor service them from seat . . . to **Monarch Mono-Cushion** tires . . . the tires that keep your trucks steady.



**THE
MONARCH
RUBBER COMPANY**

550 LINCOLN PARK • HARTVILLE, OHIO



**MOST TRUCKS COME EQUIPPED
WITH Mono-Cushions**

Steady, floor-hugging, shock absorbing Monarch Mono-Cushions . . . the King of the lift truck tires, gives your trucks efficiency plus. Mono-Cushions float your trucks . . . are easy on drivers, floors and loads. Ask your truck distributor about them!

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS

Circle No. 28 on Reader Service Card for more information

G-E REPAIR FACILITY

Ground has been broken for General Electric Company's new \$1,690,000 service shop and warehouse, designed to serve the growing industrial needs of Metropolitan Philadelphia and the Delaware River Valley regions. Expected to be the largest G-E repair facility in the nation, the new structure is scheduled to go into operation in August 1953. The one-floor operation will be set up to handle all major transportation, utility and industrial apparatus.

STICKY SEALING STUFF

How and when to use a variety of adhesives for sealing containers is discussed in an article in the packaging and shipping section of this issue. You, as a manufacturer of a good product should check every possibility in a search for ways to insure that your packaging and shipping methods give maximum safety. This article offers hints which will prove valuable in that search.

BELT EXPANSION

Conveyor belt production capacity at the Buffalo plant of Hewitt-Robins Inc., is being increased 41% by a new one-million dollar plant addition. A new 12,000 sq. ft. building has been erected and machinery has been installed. New equipment includes a press which will make belts up to 72 in. wide for long-haul conveyors used in the handling of coal, ore and other bulk materials. Dedication ceremonies were on October 25.

CONVEYING ANYWHERE

Conveyors that go around bends and corners to add flexibility to your material handling system are discussed in detail in an article you will find in this month's issue of FLOW. Tables show many of the situations which can be solved with conveyors that go around corners, and numerous photographs illustrate solutions in plants which had problems.

ASPHALT IN BAGS

The engineer research and development laboratories, Fort Belvoir, Virginia is investigating the practicability of packaging certain types of asphalt in multi-wall paper bags for shipment to army construction engineers in all parts of the world. The bags, currently undergoing rigid tests, hold one hundred lb. of asphalt which is loaded in liquid form. This is done by heating it to pouring consistency, then pouring it through a hose into the bags, which are placed in wooden scaffolds to help them retain their shapes. A clay coating on the inner bag liner prevents the hot asphalt from sticking to the paper and facilitates stripping of the bag from the contents.

COLEMAN, FANNER MERGE

A merger has been effected between the Coleman-Pettersen Corp. and Fanner Metal Products Co. to form the Fanner Metal Products Co.—Coleman Division. One of the results of the merger will be an expansion of production of wire baskets which have been made by Coleman-Pettersen.



25%

Palletainers fold flat to 25% of open size for more economical return shipment and for space-saving convenient storage.

SURE IS A LOT EASIER THAN TOTIN'...

Right! And a lot faster and more economical, too! USP Palletainers have simplified materials handling for thousands of plants in scores of industries. Chances are these versatile, practically indestructible containers can save you time, money and manpower on in-plant transport, on the production line, in storage and shipping.

Palletainers carry loads up to 6,000 pounds with perfect safety. Reinforced Malleable Iron legs provide 8-way entry for fork lift trucks and secure ceiling-high stacking. Full visibility permits speedy inventory in and out of storage.

Consult USP Materials Handling Engineers for case histories of industrial use and special application to your own materials and handling problems.

PALLETAINERS



Manufactured by:

UNION STEEL PRODUCTS COMPANY

Materials Handling Division

ALBION, MICHIGAN

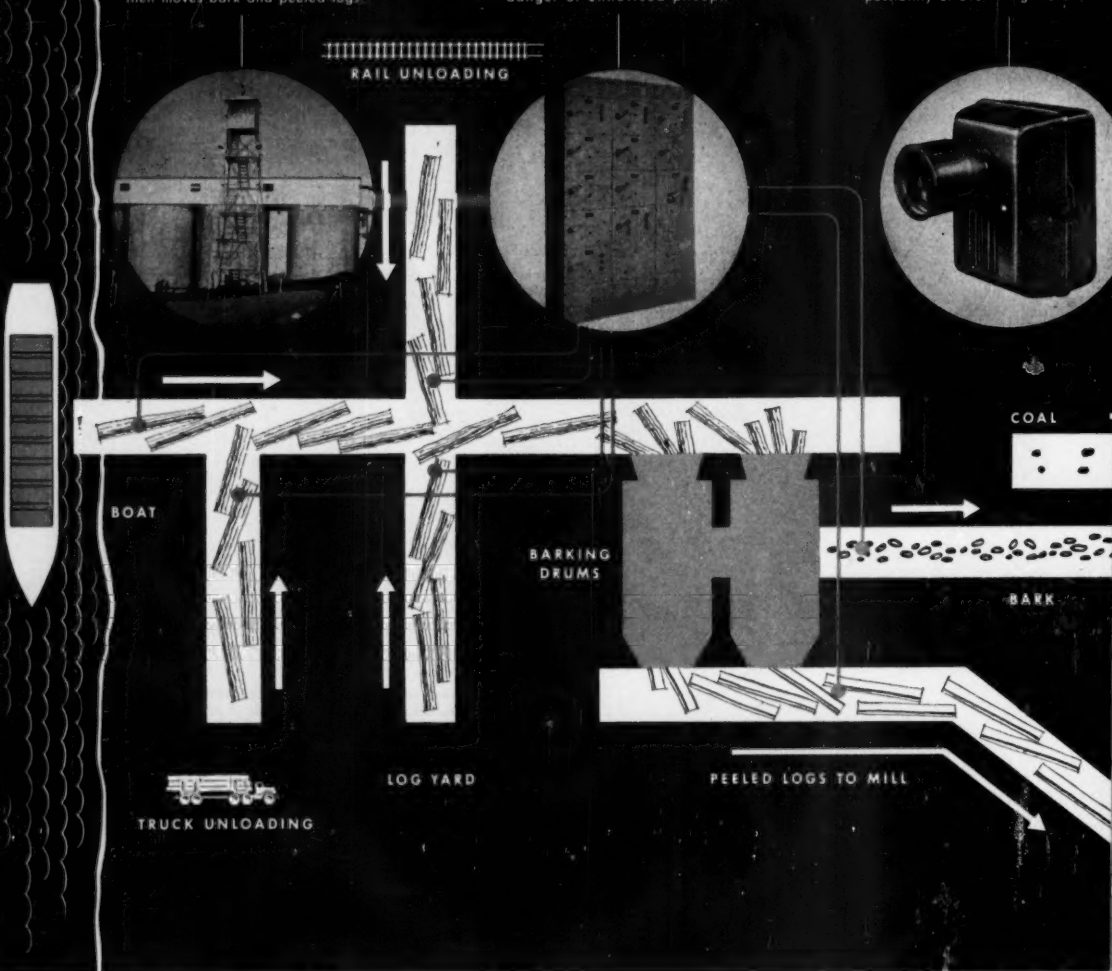
Circle No. 29 on Reader Service Card for more information

They did what you can do to produce more

One man in this 70-foot control tower runs the complex conveyor system that handles logs from four points and then moves bark and peeled logs.

Starters for the conveyor motors are interlocked so that if one stops, all behind it stop. This eliminates the danger of unnoticed pileups.

The height of fuel in the bin is constantly watched by the electric eye warning system. This prevents the possibility of overfilling the bin.



Look at all the control features built into this conveyor line

These Westinghouse gearmotors drive boiler screw feeds. They operate as slow as 1/2 rpm on coal feed, as fast as 25 rpm on bark feed.

This modern conveyor system in a paper mill is full of electrical control ideas that you may be able to use in your plant. Using electric eyes and special drives, Westinghouse engineers developed a semiautomatic system that greatly boosts plant productivity.

Interlocked conveyors controlled from tower

The first handling problem was to feed logs to central "barking drums" from four points. After barking, the peeled logs go to the mill, while the bark is sent to a burner. So a co-ordinated conveyor system was set up with all lines *electrically interlocked*. If one line stops, all behind it stop, thus eliminating the chance of unnoticed pile ups. The whole operation is controlled by one man from an elevated control tower in the yard.

"Electric eyes" guard bin loading depth

The bark is a valuable fuel so it's sent to the fuel bin. Coal is also fed by a separate conveyor. It's important that the bin not be overfilled, so an electric eye constantly "watches" fuel height in the bin and "reports" to a central control panel. A warning sounds if overfilling takes place.

Feeding rate instantly varied to meet load

The bark and coal are fed into the boiler by screw feeds at the bottom of the bins. A Westinghouse Mot-O-Trol® Drive with a gearmotor varies the feed speed from 1 1/2 rpm to 25 rpm. This wide range is required to meet the difference in heating value between burning coal and bark. And when the boiler steam load changes, the drives instantly adjust to the new firing rate.

Call Westinghouse early on your next project

This outstanding system is typical of the thinking Westinghouse applies to materials-handling problems. We make a complete line of drive equipment. When your next project comes up, call Westinghouse early in the planning stage. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-94928

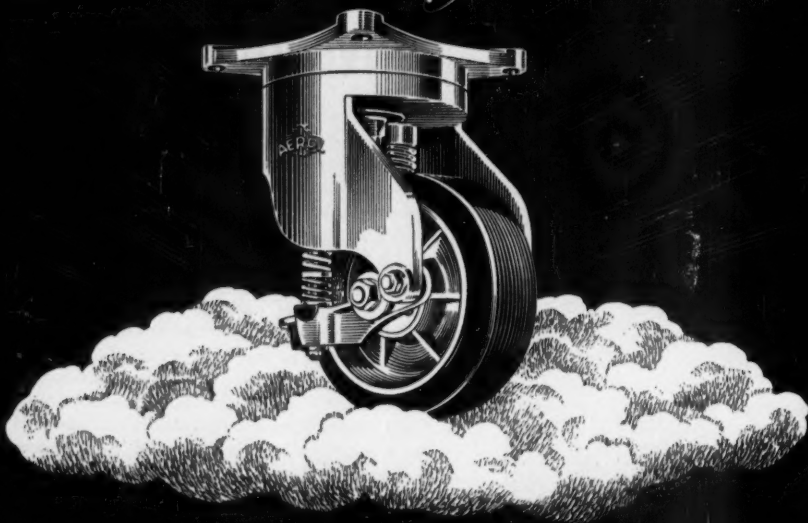
YOU CAN BE SURE...IF IT'S

Westinghouse

EQUIPMENT FOR
MATERIALS HANDLING



Aerol Proudly Presents:



THE WORLD'S *finest* SHOCK-ABSORBING WHEEL AND CASTER

At last, here is a shock-absorbing wheel and caster that *actually* provides MAXIMUM shock absorption under any condition—even when truck or dolly is completely empty.

Aerol's new "AERFLO" knee-action unit is a completely trouble-free combination of light and heavy commercial standard springs. They will never unwind, fatigue or pop. Undue wear or breakage caused by "gyrating casters" is completely eliminated by the light spring which takes the stress when truck is empty or near empty—the heavy spring is for maximum or near maximum loads. Both springs can easily be replaced to convert unit to a different load capacity.

Available in the following sizes: 6" - 8" - 10" standard duty—10" x 12" heavy duty and 10" - 12" dual wheels—all Aerol-sealed and "lubricated for life"!

Aerol wheels and casters are available at dealers throughout the United States and Canada...

Please consult your local telephone book for further information.

NO WHEEL ROLLS  LIKE AN AEROL

aerol

AEROL CO., INC., 2424 SAN FERNANDO RD., LOS ANGELES 65, CALIF.

Circle No. 31 on Reader Service Card for more information

A GOOD QUESTION TO ASK

Are the chains

DIAMOND ROLLER CHAINS?

Since the earliest types of material handling machinery were developed, Diamond Roller Chains have had an important part in their operation. Developed to eliminate back-breaking lifting and toting — the performance of these machines naturally must provide trouble-free safe service.

For this Diamond Roller Chains have proved impressively their long-life dependability, the unvarying uniform quality, great reserve strength and high efficiency.

That is why the answer to the question "Are the drives Diamond Roller Chains?" is so preponderantly "Yes".

Circle No. 32 on Reader Service Card for more information

1. Clark Fork Truck
2. Ross Carrier
3. Service Motowlift
4. Lewis-Shepard Fork Truck
5. Gerlinger Carrier
6. Baker Fork Truck
7. Mobilift Model HT
8. Automatic Fork Truck
9. Buda Fork Truck

DIAMOND CHAIN COMPANY, Inc.

Dept. 624, 402 Kentucky Avenue, Indianapolis 7, Indiana

Offices and Distributors in All Principal Cities

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

DIAMOND



ROLLER
CHAINS

What's NEW in equipment

For more information on these products, use the postcard bound into this issue.



Desk-Top Radio Station—Motorola, Inc.

A base station in a desk-top cabinet, a component of the new Motorola line of 450mc. (450-460mc. range) 2-way radio equipment, is also designed for use in the 460-470mc. range. Unit for the 450-460mc. band has 20 watts nominal power output. It includes "Sensicon" receiver design and Permakay filter for permanent selectivity under all conditions of temperature, humidity and vibration. Transmitter contains patented I.D.C. (Instantaneous Deviation Control) circuit.

Circle No. 165 on Reader Service Card for more information



Diesel Powered Fork Trucks—Towmotor Corporation

Four Towmotor Fork Lift Truck models—the LT-62, LT-60, No. 460 and 480-P—now available with either gasoline or diesel engine retain all basic operating features of gas-driven equipment. Towmotor says tests of the diesel engine have proved it can develop unusual power for its size and weight, that operating economy was found to be exceptional under hardest prolonged service, and that simplified design assures minimum operating and servicing problems.

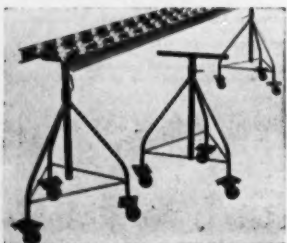
Circle No. 166 on Reader Service Card for more information



Heavy Duty Die Rack—Burroughs Manufacturing Division

In a new Die Rack by Burroughs Mfg. Div., a steel deck is placed on units of pallet rack bed with flanges turned down on each side of the deck so that there are no raw edges. Units can carry tremendous weights, depending upon size of opening. The shelving illustrated will store over 6,000 lbs. on each level. The entire rack is easily assembled and disassembled; no bolting or welding is needed. Racks may be tiered to any height desired.

Circle No. 167 on Reader Service Card for more information

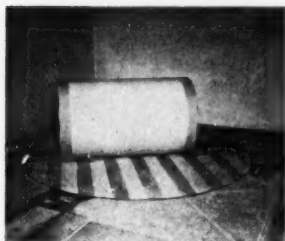


Portable Conveyor Stand—Speedways Conveyors, Inc.

Quick, easy movement of gravity conveyor sections is provided by a new, portable, tripod support produced by Speedway Conveyors, Inc. It comes in three models—small, medium and large—and rolls on 3-inch hard rubber casters. Since the conveyor does not have to be bolted to the stand, it can be quickly set up. The stands can be used with most makes of conveyors. Special stands can be supplied for special height adjustments.

Circle No. 168 on Reader Service Card for more information

Capsuled descriptions summarizing the latest information obtained from manufacturers. To get more details quickly, ask for them by number on the free-mailing Reader Service Card.



Right Angle Conveyor Turntable—*Lamson Corporation*

Heavy loads on floor conveyors can be rotated 90 deg. by a turntable developed by Lamson Corp. One floor conveyor moves the load onto the turntable. When the load is centered, the turntable begins to revolve until, when its terminal point is reached, its belt conveyor moves the load onto the next conveyor to continue the travel. Limit switches control all functions. The turntable is shown moving a 2-ton roll of newsprint.

Circle No. 169 on Reader Service Card for more information



Handy Shelf Truck—*Karl A. Herman Co.*

For factory, warehouse or store, the Herman Utility Shelf truck is intended for easy, economical movement or storage of small or light articles. Standard size is 30x40 in., 48 in. high, with four shelves spaced at 12 inches. Special sizes can be produced to meet specific needs. For such special orders, shelves can be adjustable instead of fixed. The truck has four rubber tired wheels—2 rigid, 2 swivel—and a tubular handle.

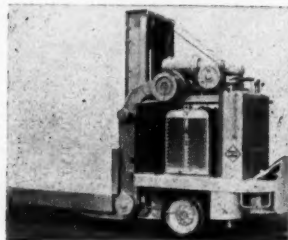
Circle No. 170 on Reader Service Card for more information



Chart-making Kit—*Chart-Pak, Inc.*

Assorted charting materials offered in a kit by Chart-Pak, Inc., include a plastic board, 28 different patterns on pressure-sensitive tapes, accessories for application, and instructions for making columnar, bar, line and curve charts. Also included are recently perfected narrow tapes, 1/16" and 1/32" wide, in colors and two printed styles. The kit includes over 10,000 inches of tape, enough to make a wide variety of business and production charts.

Circle No. 171 on Reader Service Card for more information



Die Pulling Truck—*Elwell-Parker Electric Co.*

In models from 10,000 to 50,000 lbs., a die pulling truck newly designed by Elwell-Parker offers improved operator vision and better maneuverability. Intended for handling dies on and off press beds, units can also be used as load carriers and for machinery moving. A power operated winch on the uprights pulls loads on the platform. When looped over sheaves at the platform end, it will remove loads. Power is by battery or gas-electric unit.

Circle No. 172 on Reader Service Card for more information

(PLEASE TURN THE PAGE)

The **ONE** and **ONLY** adjust-o-matic **RACK**



.. and the rack-shelf is in position

- No waste space . . . more storage space per sq. ft.
- Built for any size pallet skid or box.
- Let us tell you more . . . send for literature.



Installation at Westinghouse Electric Corp., Trafford, Pa.



Circle No. 33 on Reader Service Card for more information

40

WHAT'S NEW IN EQUIPMENT . . .

Coil-Chain Ratchet-Lever Hoist

—Coffing Hoist Company

Called the Model R, a new Coffing ratchet-lever hoist uses coil instead of roller chain to permit the chain to swing or wrap easily in any direction. The handle operates in any position—making it possible to work in cramped quarters or where there is little head room—and with either partial or full strokes, depending upon space limitations and the desire of the operator. Safety stops prevent spinning of the handle. With but a few parts, the hoist can be completely disassembled in seconds, with only a screwdriver, according to the manufacturer. It comes in 1500 and 3000 lb. capacities, with all load-holding parts said to be designed to withstand pull equal to several times their rated capacity. Every Model R is factory-tested at 100 percent overload. The handle also serves as a "safety valve" as it will bend under maximum overload conditions, thus warning the operator to prevent dropping of the load and breakage.

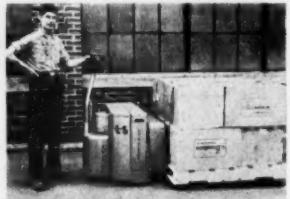


Circle No. 173 on Reader Service Card for more information

Low-Lift Walkie Truck

—Lewis-Shepherd Products, Inc.

An increase in power with a decrease in length is the accomplishment claimed by Lewis-Shepherd for its newly designed 4000-6000 lb. capacity L-S Jacklift Electric low-lift walkie truck. It now provides twice the power in 15 percent less headroom. This, the company says, will provide the greater power needed on ramps and grades and, at the same time, reduce the amount of space required for maneuvering loads. Features listed are: (1) All controls in the handle head so that the oper-



Circle No. 174 on Reader Service Card for more information

(TURN TO PAGE 124)

NOVEMBER, 1952 • FLOW

15 or more years
service --- 17.3%*

12 or more years
service --- 24.5%*

10 or more years
service --- 62.1%



— further evidence that **EDISON**
batteries
cost less per year of service

Rugged! Dependable! Long-lived!...an EDISON industrial-truck battery is always your best buy. With cells made of steel, inside and out, it's practically indestructible. Electrically, it's practically foolproof...overcharging, undercharging, accidental short circuiting, reverse charging, can't hurt it. The big reasons why there's no danger of sudden failures to cause truck downtime.

Which is why an EDISON stays on the job and out of the repair shops...helps to make material handling records. In terms of years of service, hours on the job, tons hauled, you can't beat it. Your EDISON field engineer will be glad to tell you more.

YOU CAN ALWAYS RELY ON
EDISON
Nickel • Iron • Alkaline
STORAGE BATTERIES

Edison Storage Battery Division of
Thomas A. Edison Inc., West Orange, N. J.

To get the full economy
and dependability built

into your Electric Truck—
Equip it with an EDISON

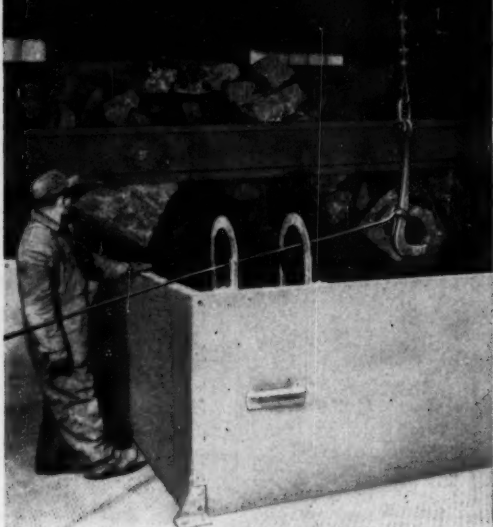


*As reported by companies
using more than 2,000
industrial truck batteries

Circle No. 36 on Reader Service Card for more information



ENGINEERING REPORTS:

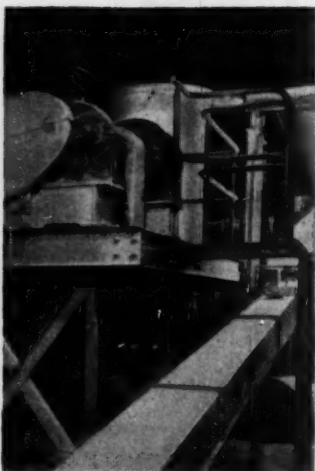


1 LIMESTONE IS DELIVERED in cars from quarry to primary crusher and hammermill. G-E powered crane is used by operator to keep rock from jamming in crusher.

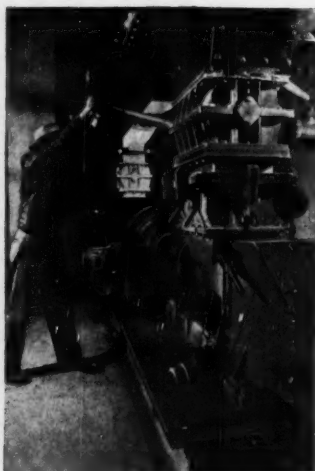


2 CRUSHED ROCK IS CARRIED to storage by a 30-inch, 1200-foot-long conveyor. This sturdy G-E 60-hp motor starts the fully loaded belt without difficulty.

Modern materials handling helps



5 PULVERIZED STONE is fed to kilns by screw conveyors (on platform) with G-E selsyn drives which co-ordinate screw speed and kiln rotation.



6 FINISHED CEMENT is pumped to packhouse by portable Fuller-Kinyon pumps. G-E 200-hp drives enable each to deliver 600 barrels per hour.

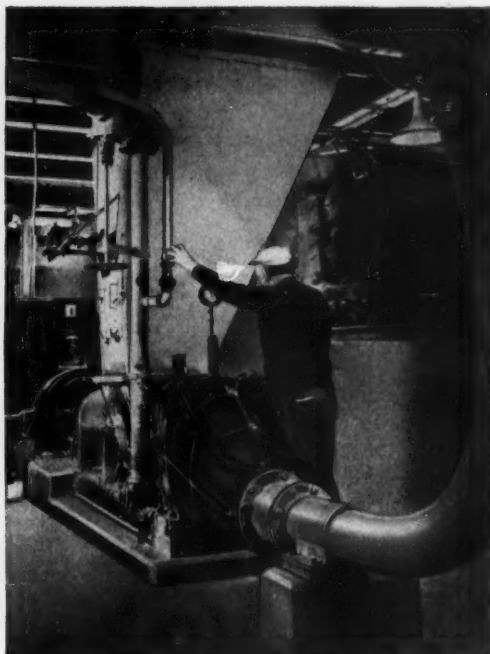


7 CONVEYOR DELIVERS filled bags to dock for loading into cars. Compact G-E gear-motor transmits maximum torque, provides uniform speed.

Circle No. 35 on Reader Service Card for more information.



3 **ROUGH BLENDING** is done in storage by two G-E powered heavy-duty d-c cranes which dump selected rock into hoppers for delivery to the raw-grinding mills.



4 **FROM GRINDING MILLS**, pulverized stone is conveyed through a 10-inch pipe to blending bins. Fuller-Kinyon pump, G-E powered, pumps 120 tons per hour.

Universal Atlas reach peak output

G-E equipped system at Hudson, N. Y. cement plant keeps operation continuous from quarry to pack-house

Every continuous-process industry has the same materials-handling problem that Universal Atlas Cement Co. faced at their Hudson, N. Y. plant: *to minimize interruptions in the flow of materials being processed.*

Here's how Universal Atlas achieved this goal: Their engineers designed a materials-handling system made up of the most up-to-date equipment available. Plans included standby equipment and materials stockpiles at strategic locations to provide for necessary equipment maintenance. Then, reliable, long-life G-E drives were used for the entire system. The success of this carefully planned program is evident today when record production flows smoothly through the plant.

A modern materials-handling system integrated

with production operations can eliminate bottlenecks and increase production in your plant. To help you achieve these goals, G-E application engineers are ready to work with you and your equipment manufacturer to solve electrical problems involved. Contact your nearest G-E Apparatus Sales Office today.

Most efficient way to modernize shown in new PROGRESSIVE MECHANIZATION program

To help you set up a step-by-step plan for bringing plant operations to peak efficiency, G.E. has developed the new Progressive Mechanization Program. Ask your G-E apparatus representative for details, or write to General Electric Company, Sect. 669-5, Schenectady 5, N. Y.

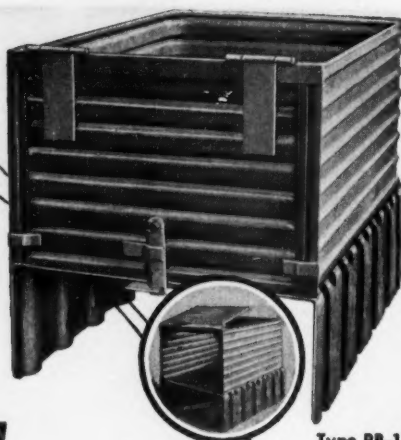
Engineered Electrical Systems for Materials Handling

Conveyor drives • Hoist drives • Industrial truck drives and battery chargers

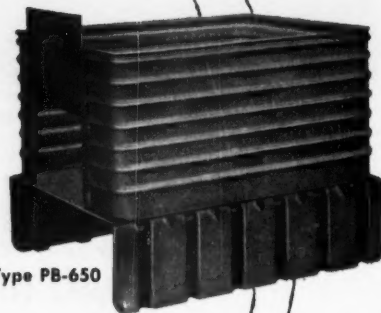
GENERAL  ELECTRIC

Circle No. 35 on Reader Service Card for more information.

QUICK and EFFICIENT in ACTION



Type PB-160



Type PB-650



Type
PB-120-FHR

Truscon Steel Boxes and Skids *keep things moving!* They are available in a wide variety of styles and sizes, for truck, crane or hand-operated carrying units.

Truscon Steel Boxes and Skid Platforms are strong at all parts where strength is needed. Units are designed to meet the particular requirements of each individual job. There is practically no maintenance or up-keep required.

Truscon engineers offer to study the handling conditions in your plant and make recommendations without any obligation on your part. This service has been rendered to many large and small manufacturers. Resultant savings have, in many instances, more than offset the original cost of the equipment within a few months.

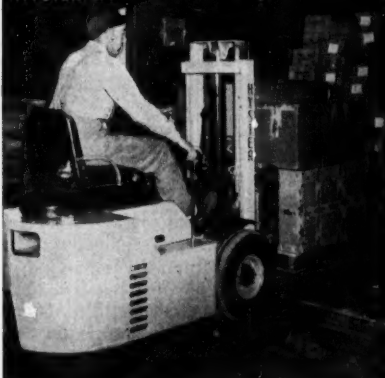
Write for illustrated literature.



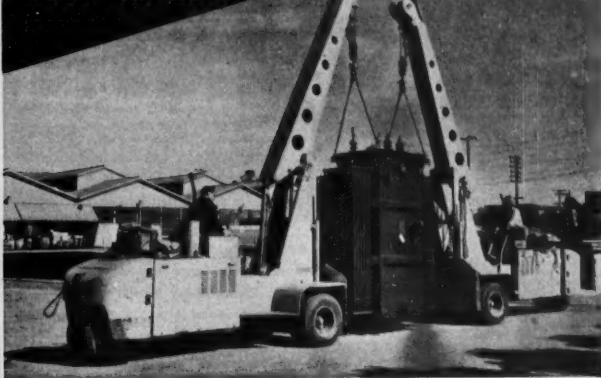
TRUSCON® STEEL COMPANY • Pressed Steel Division
6202 Truscon Ave., Cleveland 4, Ohio • Subsidiary of Republic Steel Corp.

Circle No. 34 on Reader Service Card for more information

Truck loading with
HYSTER 20



Moving transformer with
HYSTER KARRY CRANE



Car loading with
HYSTER 20



HYSTER[®] will move your loads faster, cheaper, better

BUSY AS BEAVERS—hoisting, transporting—speeding production, cutting costs—that's the everyday Hyster work schedule in all types of industries.

MATERIALS HANDLING SUPERVISORS know that a Hyster unit transports fast, stacks high, gets in and out of tough places, rolls on pneumatic tires; is rugged, powerful.

OPERATORS know that Hyster lift trucks steer easily, lift and carry loads smoothly, take indoor and outdoor jobs in stride.

MANAGEMENT knows that Hyster trucks slash manufacturing and warehousing overhead and add to net profits.

Ask your Hyster dealer for a materials handling survey or list of owners.



HYSTER COMPANY

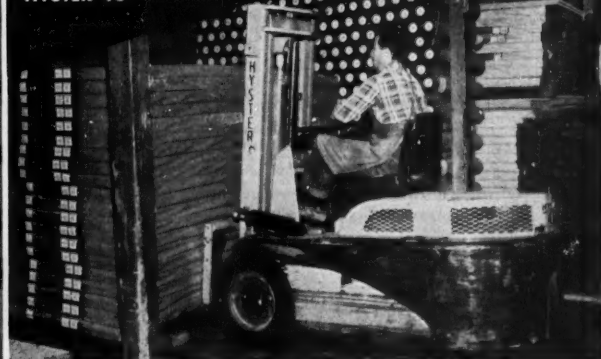
THREE FACTORIES

2931 N. E. CLACKAMAS STREET.....PORTLAND 8, OREGON
1831 NORTH ADAMS STREET.....PROBIA 1, ILLINOIS
1031 MYERS STREET.....DANVILLE, ILLINOIS

Transporting oil drums with
HYSTER 20



Stacking building materials with
HYSTER 40



HALLOWELL

"740" STEEL CART

has looks for store and office
stamina for shop and factory

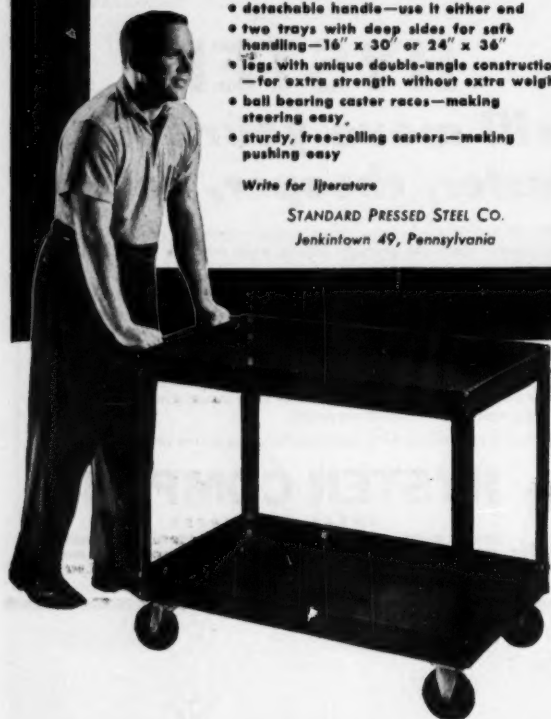
The "740" carries everything from stationery and supplies to tools and dies. Its large capacity saves countless steps and time. Its compact design is made for narrow aisles and limited space.

The "740" Features

- detachable handle—use it either end
- two trays with deep sides for safe handling—16" x 30" or 24" x 36"
- legs with unique double-angle construction—for extra strength without extra weight
- ball bearing castor races—making steering easy.
- sturdy, free-rolling casters—making pushing easy

Write for literature

STANDARD PRESSED STEEL CO.
Jenkintown 49, Pennsylvania



Shipped Knocked Down—IT'S EASY TO ASSEMBLE

A sturdy fiber container makes sure it arrives in good condition. Only 11 parts to fasten together. Just use a small socket or open end wrench. All necessary fasteners are included in the package. A few minutes' work and your "740" is ready to make life easier.

HALLOWELL MATERIALS HANDLING DIVISION

SPS
JENKINTOWN PENNSYLVANIA

Circle No. 38 on Reader Service Card for more information

Literature featured in ads

Overhead conveying equipment that your own men can install is described in catalog No. 220 prepared by the Colorado Fuel and Iron Corp. The company maintains its equipment is proving its ability to pay for itself in numerous plants and factories. Greater labor efficiency and faster handling of materials is explained in catalog.

Circle No. 4 on Reader Service Card

Complete facts on the new Automatic Transveyor in 2500 lb. capacity and 4000 lb. capacity will be sent to you by Automatic Transportation Co. The literature describes equipment expressly designed for greater storage space, narrow aisles, high stacking, maneuverability in close quarters and limited capacity floors, and elevators.

Circle No. 2 on Reader Service Card

A complete line of parts boxes and self dumping hoppers is described in bulletin No. 500 of the Brummeler Steel Products Corp. You can get a copy by circling the number appearing below, on the reader service card.

Circle No. 8 on Reader Service Card

A glutton for cullet . . . or any bulk materials is the Hough Payloader, according to The Frank G. Hough Co. Seven sizes are described in the magazine, Industrial Handling, published by the company.

Circle No. 9 on Reader Service Card

Four-way savings are described by the Union Metal Mfg. Co. in literature you can get. It tells about the use of Work-O-Matic Boxes for positioning materials, horizontal material movement, mechanical dumping and storage. Use the number below.

Circle No. 12 on Reader Service Card

NOVEMBER, 1932 • FLOW

Isn't it time your business enjoyed these savings, too?



▲ ▲ ▲ In the printing industry

YALE Gas Trucks cut costs...save time and man hours by speedily lifting, moving and stacking tons of heavy paper...in and out of storage areas; to and from giant presses...in and out of receiving and delivery facilities. Fill out coupon below to learn how *your* industry can achieve similar savings.

Savings of up to 75%...

...in materials handling costs are important savings for *any* industry! And, *any* industry can realize these savings by using YALE Gas Trucks. You save, too, on maintenance...because YALE Gas Trucks are built to stand up under the hardest 'round-the-clock service.

Get the full story of YALE's cost-cutting advantages and how they apply to your business. Contact your YALE representative...he is fully qualified to recommend and demonstrate the equipment that will do the best job for you...most efficiently...at lowest cost.

You get these exclusive features when you buy YALE Gas Trucks:

FLUID DRIVE

3 to 8 times longer clutch life

HYPOID GEARS

30% more strength against shock loads

SHOCKLESS STEERING

passenger-car steering ease

AUTOMOTIVE-TYPE BRAKES

smoother, safer stops

ROLLER CARRIER UPRIGHTS

less friction and more efficiency

65-HP ENGINE

waterproofed and built for rugged, constant service

No other Gas Trucks

offer all these money-saving advantages!

YALE is a registered trade mark of The Yale & Towne Mfg. Co.

MAIL THIS COUPON TODAY

The YALE & TOWNE Mfg. Co., Dept. 411

Roosevelt Blvd. & Malden Ave., Philadelphia 15, Pa.

How can YALE Gas Trucks do more—save money—for me?

☐ Please have your local representative call

☐ Please send my free copy of

THE PICTURE STORY OF YALE MATERIALS HANDLING EQUIPMENT

Company _____

Name _____

Title _____

Street _____

City _____

State _____

In Canada write: The Yale & Towne Manufacturing Company
Box 337—Postal Station "A"—Toronto

YALE

GAS AND ELECTRIC INDUSTRIAL TRUCKS • WORKSAVERS
HAND TRUCKS • HAND AND ELECTRIC HOISTS • PUL-LIFTS

Circle No. 39 on Reader Service Card for more information

IF IT HAS
TO GO **UPSTAIRS**



PUT THE LIFTVEYOR TO WORK

The Liftveyor is a quick economical way to move boxes, crates, parts and subassemblies from one floor to the next.

It was engineered by conveyor specialists with more than 30 years experience in materials handling.

All parts are standardized and mass-produced for manufacturing economy—low cost.

All elements are tested, assembled and packaged for immediate shipment and for a minimum amount of field assembly.

The design of all components has stood the supreme test of long continuous service and the complete assembly incorporates all approved safety factors.

Roll speed and type of bed (roller or slider) are optional.

Conveyor may be controlled from any point.

*Write for details and prices,
detailing your operating requirements.*

**Mechanical
Handling**
Systems, Inc.

4420 NANCY AVE. • DETROIT 12, MICH.

Offices in Principal Cities

In Canada: Canadian Mechanical Handling Systems, Ltd.



Circle No. 40 on Reader Service Card for more information

Work-O-Matic drop-bottom boxes and work-positioning stands, to cut in-production costs and increase efficiency, as well as Multi-Duty boxes, which allow 5-way fork entry to expedite handling in cramped quarters, are described by Union Metal Manufacturing Company. Features providing for constant dumping point at any fork height and space-saving storage are respectively stressed.

Circle No. 12 on Reader Service Card

Highlighted in a new bulletin by Coffing Hoist Company is their new coil chain Ratchet Lever Hoist. The coil chain wraps or swings in any direction; the ratchet and pawl system holds positively at all times; the handle operates in any position, has safety stops keep it from spinning; and a safety factor of 5 times rated capacity has been designed into all load-holding parts.

Circle No. 101 on Reader Service Card

A 32-page catalog tells of the versatility of Power Drag Scrapers manufactured by Sauerman Bros., Inc. It tells why these one-man operated units are suitable to any stockpiling job, large or small, either indoors or outdoors.

Circle No. 111 on Reader Service Card

Offered by Darnell Corp., Ltd. is a new, free manual on casters and wheels. It shows ways to save costs and time and, simultaneously reduce wear on floors and equipment.

Circle No. 154 on Reader Service Card

Baker-Raulang Co. has prepared a new catalog No. 54 on its line of fork lift trucks. Many features to look for before purchasing electric trucks are explained by Baker in literature available. Motors, for example, powering Baker trucks are manufactured in the Baker plant because Baker engineers feel a special motor is needed to perform efficiently the tasks expected of a lift truck power plant.

Circle No. 7 on Reader Service Card

A free book of case histories of successful monorail applications for overhead material handling is available from the Loudon Machinery Co. Both storage and moving operations are said to be performed more efficiently overhead in many instances, while the manpower required has decreased.

Circle No. 155 on Reader Service Card



YOU'LL PROFIT FROM THE BEST of this cost-cutting experience

The rough, tough schools of competition and experience are great teachers.

That's why Rapistan now releases a vast library of fast-reading, illustrated data on how other companies have changed materials handling problems into profits. Many of them are in your own field.

These field reports are from every corner of the country. Each report gives you a tested and successful handling improvement idea that could save you thousands of dollars yearly. You'll find many suggestions on how to use your present equipment in new ways.

Our surveys show that of those reports distributed, 75% have been kept by management men for future action. At least 20% of these reports have inspired immediate improvements in handling methods.

Rapistan invites you to share its long cost-cutting experience by indicating which of these factual reports will be helpful to you. Check the list on this page or just write today on your letterhead.

Rapistan conveying equipment is right for each job... single units, lines or engineered systems for specific needs. Rapistan equipment is better 3 ways in flexibility, quality and exceptional value.

Rapistan®

BETTER CONVEYING EQUIPMENT

Representatives in Principal Cities

CONVEYORS • INDUSTRIAL CASTERS • WHEEL-EZY® TRUCKS

Circle No. 41 on Reader Service Card for more information

FLOW • NOVEMBER, 1952

YOURS FOR THE ASKING!

Complete Rapistan Field Reports on how materials handling problems similar to yours have been successfully solved by and for leaders in your own field. Each report details the problem involved, its solution, and results obtained. Below is a partial listing of available reports. No charge. No obligation.

Please check your business classification:

☐ Manufacturing ☐ Agricultural ☐ Wholesale ☐ Retail

Check reports below which will be of greatest benefit to you:

- | | |
|---|--|
| <input type="checkbox"/> Aircraft Parts | <input type="checkbox"/> Heating Equipment |
| <input type="checkbox"/> Auto Supplies | <input type="checkbox"/> Household Appliances |
| <input type="checkbox"/> Beverages | <input type="checkbox"/> Laundry Services |
| <input type="checkbox"/> Building Supplies | <input type="checkbox"/> Leather Products |
| <input type="checkbox"/> Canneries | <input type="checkbox"/> Machine Parts |
| <input type="checkbox"/> Chemicals | <input type="checkbox"/> Magazines, Newspapers |
| <input type="checkbox"/> Cosmetics | <input type="checkbox"/> Meat Packing |
| <input type="checkbox"/> Dairy Products | <input type="checkbox"/> Metal Stamping |
| <input type="checkbox"/> Fabricated Metals | <input type="checkbox"/> Paint Products |
| <input type="checkbox"/> Floor Coverings | <input type="checkbox"/> Paper and Publishing |
| <input type="checkbox"/> Food Products | <input type="checkbox"/> Pharmaceuticals |
| <input type="checkbox"/> Freight Terminals | <input type="checkbox"/> Power Tools |
| <input type="checkbox"/> Fruits, Vegetables | <input type="checkbox"/> Sugar Refining |
| <input type="checkbox"/> Furniture | <input type="checkbox"/> Tobacco Products |
| <input type="checkbox"/> Grain and Feeds | <input type="checkbox"/> Warehousing |
| <input type="checkbox"/> Grain Milling | <input type="checkbox"/> Waste Materials |
| <input type="checkbox"/> Grocery Store | <input type="checkbox"/> Wood Products |

There are many other Rapistan Field Reports. If your business is not listed, please indicate your special needs below:

THE RAPIDS-STANDARD COMPANY, INC.
763 Rapistan Building, Grand Rapids 2, Michigan

NAME _____

COMPANY NAME _____

STREET ADDRESS _____

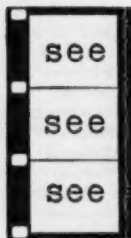
CITY _____ ZONE _____ STATE _____



There's only one way for you to find out what modern materials handling systems can do, and that's to see them — in action . . .

And you can see them in action — in your own office — on the new Lamson 16 mm. sound motion picture, "Conveyors that Pay Dividends."

No still pictures or pages of words could possibly tell this dynamic story. That's why we're offering you the chance to see this film . . . run it yourself . . . anytime . . . any place. You name it!



action views of Lamson installations all over the country . . . results of over 72 years of applied experience in designing, building and installing material handling systems.

how modern methods can cut hidden costs, save lost time and eliminate unnecessary motion.

how a Lamson Conveyor System becomes a living flow chart providing an accurate picture of product flow at any hour.

Write today. We'll send you the film or, if you prefer, we'll send a Lamson engineer to screen it for you — no obligation, of course.

LAMSON

LAMSON CORPORATION • 130C Lamson St., Syracuse 1, New York

I am interested in seeing your film "Conveyors that Pay Dividends."

☐ Ship film prepaid, marked to my attention, to address below. I will return to you prepaid after showing, and will use reasonable care in handling but assume no responsibility beyond this.

☐ Arrange to have the film shown here by your Field Engineer. The dates most convenient to me would be _____ or _____
The audience will consist of approximately _____ persons.

Name _____ Title _____

Firm Name _____ Type of Business _____

Street _____ City _____ State _____ 8453

Circle No. 42 on Reader Service Card for more information

You can get full information on how Acme Steel Strapping insures Safe Arrival, cuts costs on packing, loading and shipping. Acme Steel Co. will send you the info.

Circle No. 13 on Reader Service Card

Magnesium Dockboards are discussed in a bulletin you can get from the Magnesium Co. of America. Six money-saver features are described.

Circle No. 16 on Reader Service Card

"Nothing will keep your electric industrial trucks in continuous operation like a well-organized system of battery maintenance," says Gould-National Batteries, Inc. The company would like to send you a complete library of technical information that tells how to select, charge, handle, maintain, and determine the condition of lead-acid batteries, regardless of make.

Circle No. 21 on Reader Service Card

You can weigh any hopper anywhere in your plant from one location, according to this month's ad of Baldwin-Lima-Hamilton Corp., Testing Headquarters. Four bulletins are available to give complete information.

Circle No. 27 on Reader Service Card

Controls in conveyor lines are discussed by Westinghouse Corp. in literature you can get. Circle the number appearing below, on the reader service card.

Circle No. 30 on Reader Service Card

Everything from stationery and supplies to tools and dies are said to be carried with equal success in the Hallowell "740" steel Cart. It is shipped knocked down and is easy to assemble. You can get information from Standard Pressed Steel Co.

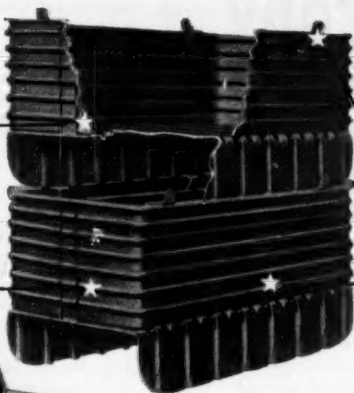
Circle No. 38 on Reader Service Card

Savings of up to 75% in material handling costs are important savings for any industry. The Yale & Towne Mfg. Co. will tell you how to get such savings for yourself, in "The Picture Story of Yale Materials Handling Equipment."

Circle No. 39 on Reader Service Card

HERE'S WHY POWELL MATERIALS HANDLING EQUIPMENT LASTS LONGER.....

Double Construction at Joints Insures Against "Seam Splitting."



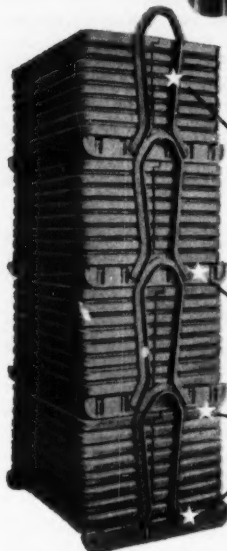
Lugs Designed to Seat Firmly - To Last the Life of the Box.



Heavy Coating of Tough Wear-Resistant Paint Evenly Applied.

Depth and Interval of Corrugations Give Maximum Strength.

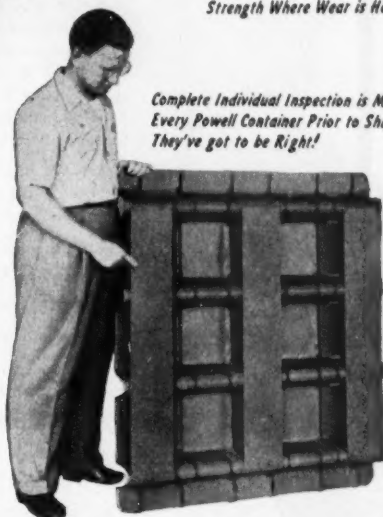
Cut-Away Shows Standard Powell Flange Construction. Steel is Folded Back on Itself to Give Maximum Strength Where Wear is Heaviest.



Angle Crane Stacking Attachments Provide Safe, Secure Unit Tying.

Steel Channel Runners Give Boxes Sure Seating With Added Stability.

Offset Overlap Interlocks for Maximum Strength

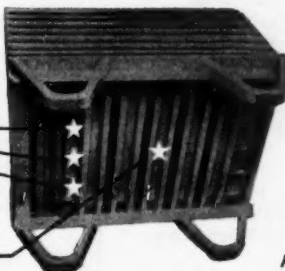


Complete Individual Inspection is Made of Every Powell Container Prior to Shipment - They've got to be Right!

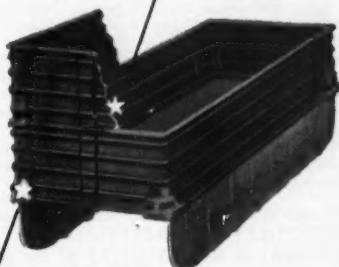
Only Prime Steels Are Used in the Manufacture of Powell Containers. Gauge and Alloy to Suit Job Requirements.

All Welds Are Fully Sufficient for Heavy Duty Service. No Tack Jobs!

Ruggedness of Strength Without Weight. Powell Design Unmatched In Any Other Container.



Powell Corner Lugs are Designed to Make Spotting Easy. Attached to Stay Put.



.....that's why it's always smart to **SPECIFY**

THE POWELL PRESSED STEEL CO., HUBBARD, OHIO

ORIGINATORS OF ALL STEEL COLD FORMED MATERIALS HANDLING EQUIPMENT
(In Greater Youngstown)



Circle No. 43 on Reader Service Card for more information

FLOW • NOVEMBER, 1952

DEPT. 3112
51

This man's boss needs a FLOW DIRECTORY



"There oughtta be an easier way to do this job", thinks our friend with the shovel. There is an easier way, in fact, there are dozens of them . . . all listed clearly in the FLOW DIRECTORY.

Wherever materials are handled, the FLOW DIRECTORY is an authoritative source of information on material handling equipment. It classifies and describes every kind of material handling equipment, and tells where to buy it.

You can find the information you need in one of these six completely indexed sections:

- Equipment and Manufacturers
- Trade Name Index
- Manufacturers' Outlets
- Engineering and Technical Data
- Manufacturers' Catalogs
- Who Sells Equipment



Flow Directory
1240 Ontario St.
Cleveland 13, Ohio

Please send me.....copy(ies) of the new 1952-53 FLOW DIRECTORY OF MATERIAL HANDLING EQUIPMENT, MACHINERY & ACCESSORIES at the price of \$6.50 per copy.

Name
Title
Company
Street
City Zone State

Circle No. 44 on Reader Service Card for more information

A copy of the booklet, "Man Hour Thieves," is available from the Towmotor Corp. This manufacturer teams his line of lift trucks with 25 specialized attachments described in the literature for permitting speedy push-button handling of all types of materials.

Circle No. 49 on Reader Service Card

Specialized trucks and trailers built to individual specifications is the job performed by Kilbourne & Jacobs for the material handling industry. They offer complete design service and invite inquiries for details.

Circle No. 135 on Reader Service Card

A brochure entitled "In Dollars and Sense" may be obtained from Roura Iron Works, Inc. describing the use of hoppers for handling wet or dry, hot or cold bulky materials. One man controls the distribution and unloading of materials with the Roura Hopper, according to the claims of the manufacturer.

Circle No. 45 on Reader Service Card

Stanley Works maintains there are two ways to open plant doors—the hard and expensive manual way and the easy, economical Stanley way. Information may be obtained covering the application of Stanley controls for operating doors of all types. They state that existing doors, whether swinging, sliding or folding types, can be equipped with automatic controls.

Circle No. 105 on Reader Service Card

The G. B. Lewis Co. has representatives from coast to coast ready to advise and assist plant owners with the selection of containers best suited to their needs. Lewis wood and steel reinforced boxes serve both as storage and shipping containers, the manufacturer maintains, and special requirements will be engineered to individual needs.

Circle No. 59 on Reader Service Card

The story of economical operation, speed in handling of materials and ease of movement in tight places will be told in literature and information obtainable from Hyster Co. concerning its model 20 and model 40 lift trucks.

Circle No. 37 on Reader Service Card

Handling of awkward loads is discussed in a new brochure No. AD-30B recently released by Lull Mfg. Co. Various attachments are described for their Traveloader to accomplish such tasks as handling heavy cable on spools and other similarly difficult assignments.

Circle No. 108 on Reader Service Card for more information

Information covering V-grooved heavy duty casters is available from Albion Industries. Made to operate off the floor on angle iron track, they are said to afford a more rugged easier moving of heavy loads without danger of floor damage.

Circle No. 148 on Reader Service Card for more information

Information describing a new model Cargotainer has been released by Pittsburgh Steel Products Co. The new version, while retaining the original advantages of the standard model, is said to incorporate numerous new features. The new model still will interchange and stack with the standard model.

Circle No. 3 on Reader Service Card for more information

Both high and low lifting operations within extremely narrow aisles is emphasized in literature which may be obtained from Lewis-Shepard Products, Inc. Their Model M Spacemaster, their Jackstacker and Jacklift electrics all are said to operate in less than 6-foot aisles.

Circle No. 25 on Reader Service Card for more information

Thirty-six models with capacities from 500 to 200,000 pounds are described in a catalog available from Hydroway Scales, Inc. The manufacturer claims Hydroway enables on-the-spot weighing of materials thereby eliminating special weighing stations and manpower tieups.

Circle No. 106 on Reader Service Card for more information

Doing away with the old pushbroom and performing your floor-cleaning chores with one of several models of the Parker Industrial Floor Sweeper can mean savings of from \$10 to \$50 weekly, according to the manufacturer. Results of actual tests and other information pertaining to Parker manual and motorized sweepers are available from the company.

Circle No. 97 on Reader Service Card for more information

Information describing Clark Duo-flex knee-action casters may be obtained to assist in determining individual caster requirements. Numerous special advantages of Clark casters are claimed in literature available from the manufacturer, All Steel Welded Truck Co.

Circle No. 103 on Reader Service Card for more information

Engineering all types of conveying systems for many varied industries is a service available at the Alvey-Ferguson Co. The facilities of their engineering department may be enlisted wherever a conveying problem prevails. They invite inquiries without obligation for an early discussion of your needs.

Circle No. 62 on Reader Service Card for more information

(TURN TO PAGE 146)

FLOW • NOVEMBER, 1952

Use Self-Dumping Containers

Step-Up PRODUCTION with ROURA Self-Dumping HOPPERS



Save 50% Labor-Time

—they pay for themselves

Only ROURA Has The Exclusive
PATENTED Instant Release Handle



Handling wet or dry, hot or cold, bulky materials quickly and easily, the ROURA is simple to operate—only one man is required for distributing and unloading—and he does this in much less time than ordinarily required under old-fashioned manual methods. Thousands of Roura Hoppers (which fit any standard fork or platform lift truck) are in constant daily operation, serving and saving for such firms as Owens-Illinois Glass, Corning Glass, National Fireproofing, General Motors, Ford, Chrysler, American Brake Shoes, General Electric, Westinghouse, Western Electric, American Steel Foundries, International Harvester, John Deere, etc.

By a simple lift of the exclusive release handle, the ROURA HOPPER dumps, rights and locks itself securely. Sizes— $\frac{1}{2}$, $\frac{3}{4}$, 1, 1 $\frac{1}{2}$ and 2 cubic yards; the ROURA HOPPER can also be designed for flat trucks and in other sizes to meet specifications. Also, it can be equipped with special flanges that permit stacking to desired tiers for storage or future distribution of materials—conserving valuable floor space. Priced below all competition, the ROURA will quickly pay for itself many times over.

—Can Be Coated With Acid-Resistant Paints
Write today for detailed brochure, "In Dollars & Sense."

ROURA IRON WORKS, Inc.

1411 Woodland Ave.

Detroit 11, Mich.

Circle No. 45 on Reader Service Card for more information

53



Engineered

Pallet type "Walkie"
truck 4000 to 6000 lb.
capacity.

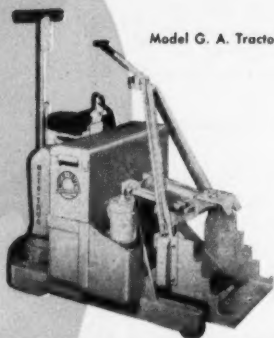
TO FIT YOUR JOB ...

*Custom Built or... ...Standard Models

Whether your materials handling job requires special applications or is adaptable to standard models, the cost is relatively the same.

Our Engineers will welcome the opportunity to discuss YOUR particular material handling job . . . Moto-Truc's can be engineered to fit the job. Investigate their "Job application" offer in the economical "Walkie" type lift trucks. Your inquiry will receive prompt attention.

SEND FOR BULLETIN #51



Model G. A. Tractor.

...AT NO EXTRA COST*



Hi-lift "Walkie" type
3000 to 4000 lb. capacity.



Platform "Walkie" type
4000 to 10,000 lb. capacity.

Representatives in Principal Cities

The MOTO-TRUC Co

1985 E. 89th STREET • CLEVELAND 3, OHIO
PALLET . . . PLATFORM . . . HI-LIFT TRUCKS

LARGEST EXCLUSIVE MANUFACTURER OF "WALKIES"



news from the SALES FIELD

The Baker Raulang Co. has announced the addition of **Walter S. Maranuk** to its Detroit staff. Maranuk will serve as vice-president of **H. A. Stevenson, Inc.**, distributors of Baker industrial trucks in Michigan. His background includes more than a decade in the material handling industry, including sales and engineering positions with **Yale & Towne Mfg. Co.**

Lewis-Shepard Products, Inc. has appointed **Raymond F. Purinton** as exclusive sales and service representative in the Denver territory which includes all of Colorado, Wyoming and part of Southwestern Nebraska. Purinton, who has handled Lewis-Shepard products for the past five years, will be located at 1754 Blake Street, Denver.

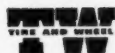
Richard S. Stockwell has been appointed exclusive sales and service representative for Lewis-Shepard products in the Minneapolis-St. Paul territory which includes all of Minnesota and part of Wisconsin. He will be located at 2426 University Ave., St. Paul.

Three new sales representatives have been appointed by the **Ohio Tramrail Division of the Forker Corp.** It has been announced that **Barton Sales Co.**, 1609 West 3 Street, Ft. Wayne, Indiana, headed by **Owen Barton** will cover Northern Indiana and Western Ohio, including Ft. Wayne, South Bend, east to Lima, Ohio. **Hugh Boyd**, Farmers Bank Building, Mansfield, Ohio has been

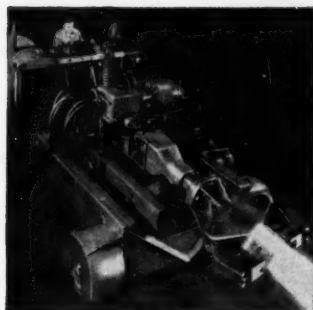
(TURN TO PAGE 149)

Circle No. 46 on Reader Service Card for more information

B.F. Goodrich



ANALYSIS PLAN cuts materials handling costs



Unusual equipment? Cumbersome loads?



Need tires to resist cuts and snags?



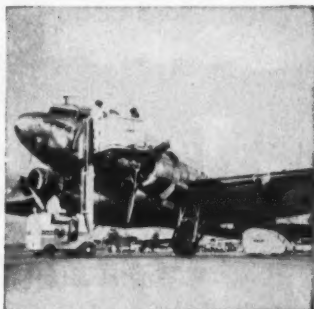
Tire-damaging hauling surfaces?



Which tread compound for greasy floors?



Giant loads to store?



Which tread design gives longest wear?

How to save up to 50% on industrial tires and wheels

● Materials handling costs going up? Then perhaps you should be using different types of industrial tires and wheels. Right tires wear longer, decrease maintenance costs, reduce repair time. It takes expert advice to pick the right tire for the job—advice you can get *free* from the B. F. Goodrich Tire & Wheel Analysis Plan. A trained BFG man studies your equipment, loads, hauling surfaces and any special problems. He makes impartial recommendations as to the right tread compound and design, type and size tire for your job. He gives maintenance tips, too.

You can be sure the TW Analysis man's advice will be unbiased, for B. F. Goodrich makes a *complete* line of tires.

Here's your opportunity to save as much as 50% on industrial tire and wheel costs with this free, no-obligation service. Call the local B. F. Goodrich dealer or send in the coupon. B. F. Goodrich dealers sell and service a complete line of industrial tires.

A special TW Analysis Plan is available for manufacturers of industrial hauling equipment.



The B. F. Goodrich Co.
Department TW-211
Akron, Ohio

Please give me additional information on your new Tire and Wheel Analysis plan.

Name

Title

Company

City State

Circle No. 47 on Reader Service Card for more information



**Trucks CAN work a full day
WITHOUT power letdown!**

When powered with a C & D Slyver-Clad* battery, industrial trucks work through a full shift without weakening. That's because C & D batteries are stronger right from the start.

An exclusive Five-Fold Slyver-Clad method of plate insulation and retention gives C & D batteries 20% greater capacity than conventional batteries. Plates are heavier, thicker, and 14% longer! The result—more power and a 35% longer work-life. Yet these extra-powerful batteries require no more space than conventional batteries!

For further information, write for the C & D Slyver-Clad folder today! It contains full details on their outstanding construction and performance.

*Trade Mark Registered U.S. Pat. Off.

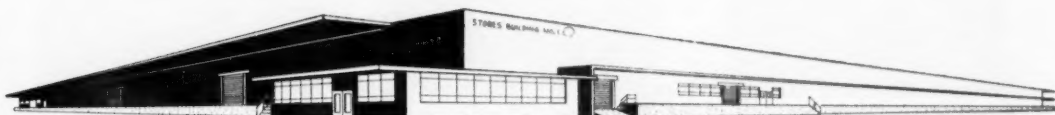
C&D

BATTERIES, INC.

OF CONSHOHOCKEN, PA.
(In the Philadelphia Area)

Manufacturers of industrial batteries since 1906
Sales and Service
in principal cities from coast to coast

Circle No. 48 on Reader Service Card for more information



Building Designed for Handling

Here's what we've all been waiting for—
a building planned and constructed to suit a well
integrated handling system. See how it was arranged
to have all components work together. Note the vital
role of communication. This should be of special
interest to those planning new or redesigned plants.

By J. E. Brewer, Ass't. Stores Manager
Shell Oil Co., Wood River, Ill.

BACKGROUND:

The Refinery Stores Department of the Shell Oil Co.'s new refinery at Wood River, Ill., is responsible for procuring, storing, issuing, delivering and salvaging materials plus related accounting functions. We are responsible for basic types of refinery equipment in addition to those for general refinery maintenance and operations.

THE PROBLEM:

Our old buildings were too small for the material handled and stored; operations in several buildings resulted in a general lack of control over material and highly inefficient operations which, of course, reflected in the overall cost of operating the Stores Department as well as the refinery. To correct this, a new Stores installation was recently completed.

THE BASIC PLAN:

Communication: Throughout all designing and planning, careful consideration was given to providing facilities for rapid handling of orders as well as materials. To facilitate handling of material orders and other "paper work" the building was equipped with a network of 11 pairs of pneumatically operated tubes.

An inter-communication system with 24 stations was provided for verbal contact. Master stations through which calls may be initiated or received are located in the offices of top supervision, in the receiving and shipping room, at the material dispatching station, and at the order receiving station. There are three sub-stations in the office, (11 in the building, and one outside the building over the yard) through which calls may be received and conversations carried on with the initiator.

MATERIAL SECTION OF BUILDING:

43,200 square feet of space—and none of it wasted

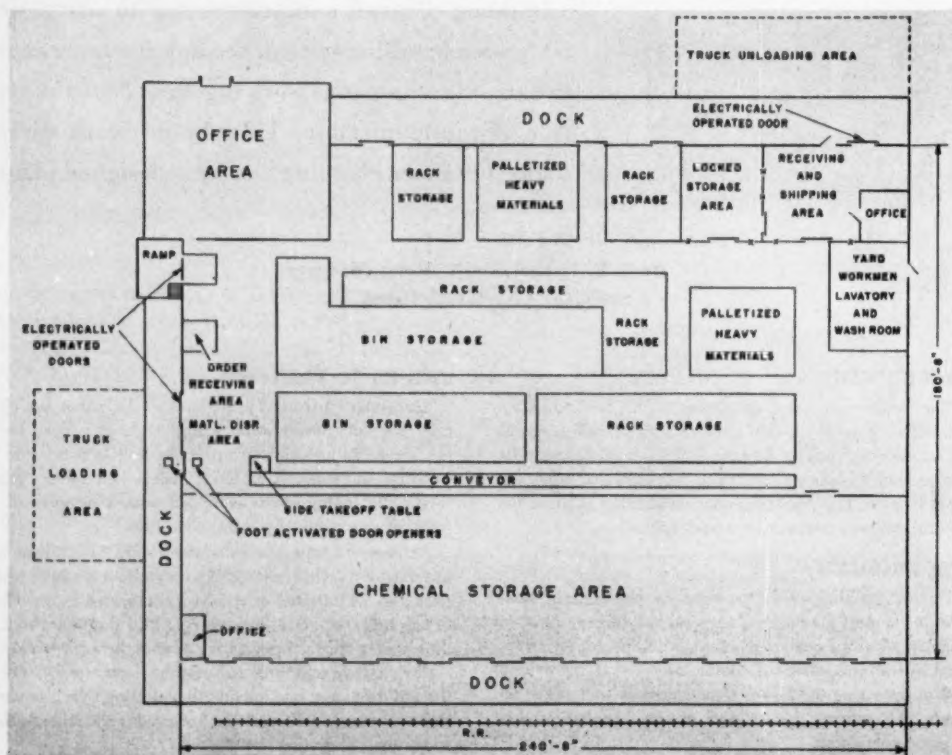
Layout: The material handling and storage section of the building is 180 ft. wide and 240 ft. long. This portion of the building consists of five general sections: receiving and shipping, general storage, order receiving and dispatching, material dispatching and chemical storage (see Figures 2 through 4).

Equipment: Four fork trucks and a 208-ft.-long conveyor (extending almost the entire length of the building) have been provided for material handling purposes. Palletized storage is the general rule. Where palletization is impractical, various types of conventional bins, racks, etc.

are in use. (Typical types of storage employed are shown as Figures 5 through 8).

Doors: All frequently used doors are electrically operated. The door at the material dispatching station is activated from inside or outside the building by foot contact with a floor control. This eliminates excessive handling of materials, wasted steps or time by operators. The doors in the chemical section are operable from the outside to give maximum storage by permitting storage flush with the inside of the door.

FIGURE 1: MATERIAL STORAGE AND HANDLING SECTION of the building is shown in this layout. The photos on the opposite page illustrate various operations within this area. Note also storage practices employed.



Activities In The Handling & Storage Section . . .

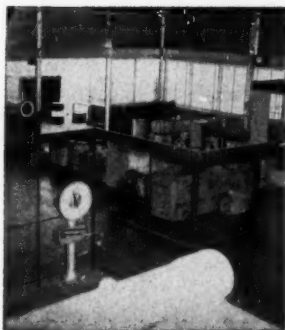


FIGURE 2: MATERIAL RECEIVING AND SHIPPING AREA. Here, a fork truck is transporting material to the storage and dispatching area. In this area, incoming loads are checked against orders sent to storage.



FIGURE 3: ORDER RECEIVING AND DISPATCHING AREA. The operator receives an order for material from the refinery, dispatches a written transfer request to the proper area via the pneumatic tube.



FIGURE 4: MATERIAL DISPATCHING AREA. Material is being transported by fork truck to material dispatching area. Dispatcher has master intercommunication station set and pneumatic tubes to expedite his work.

Typical Types of Storage Practices Employed . . .



FIGURE 5: CHEMICAL PALLETIZATION. Bagged chemicals are placed on pallets, stacked to ceiling limits to obtain maximum storage space. Fork truck operations increase handling efficiency. Note floor sweeper used for cleaning both docks and building floors.



FIGURE 6: PALLETIZED RACK STORAGE. A wide variety of palletized goods, cartons, cans, barrels, packages, etc., are stocked in racks. Note also, inter-communication sub-station above aisleway (arrow). Shell's inter-comm system is vital to operational control.



FIGURE 7: HEAVY EQUIPMENT PALLETIZATION. Heavy assemblies are stored on pallets and stacked five high. Box-type pallets are used for small parts, are also designed for stacking. "Handle as many at one time as possible" is a cardinal rule for the company.



FIGURE 8: BIN STORAGE. (A) Pneumatic tubes near ceiling extending to various sections of the building. (B) Inter-communication sub-station #5 which is located above the center of the aisle. (C) Light cords extending from tracks to bins to permit mobility.

Design for Handling . . . (Cont'd) . . .

HANDLING AND STORAGE IN THE YARD:

a 15-ton mobile swinging-boom crane, a 4,000-lb. and a 5,000-lb. fork truck do all the heavy work.

Layout: The material yard is 662 ft. wide and 848 ft. long covering approximately 13 acres. It is completely enclosed with a six-ft.-high chain link fence and is well lighted. Three railroad spurs have been provided with a total approximate length of one mile.

Equipment: Primarily, heavy material such as pipe, tubing, lumber and drums are stored in the yard as shown in Figures 10 through 12. A pneumatically-tired 15-ton crane and a 4000 lb. and 5000 lb. fork truck have been provided for handling. Ap-

proximately a 50 ft. area in front of each dock is paved with asphalt concrete to facilitate operations of rolling equipment. The remaining roadways and material storage areas are heavily covered with limestone rock and penetration asphalt.

FIGURE 9: YARD STORAGE PLAN. In this 662 ft. x 848 ft. yard, heavy material such as pipe, tubing, lumber and drums are stored. The company uses a 15-ton mobile crane and two fork trucks for handling tasks.

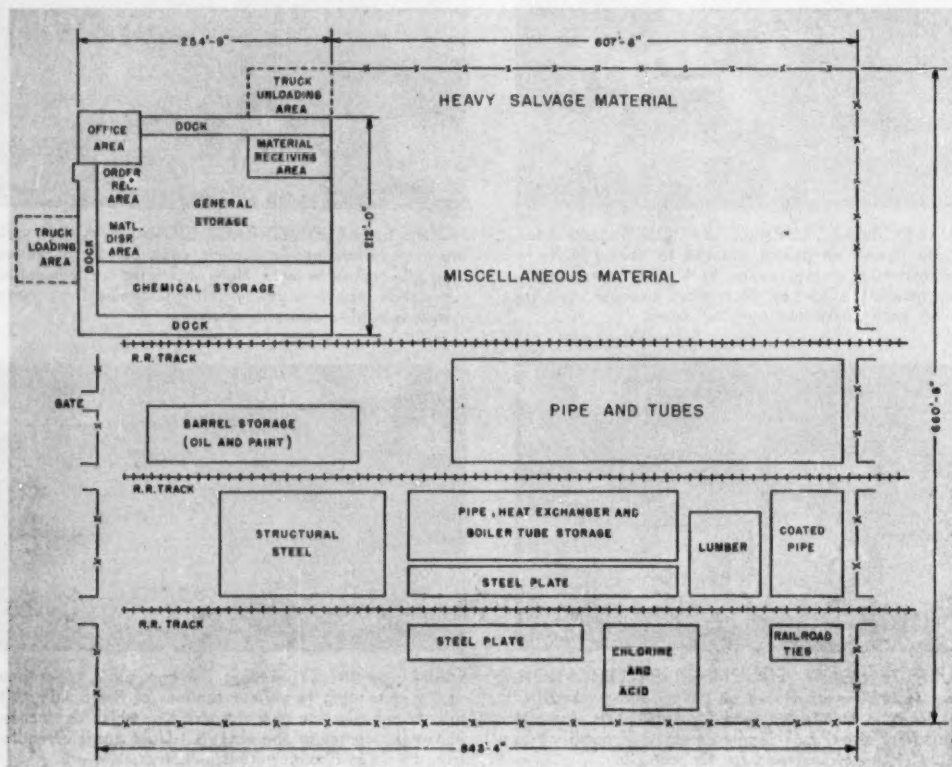


FIGURE 10: LUMBER HANDLING AND STORAGE. Fork trucks handle and stack lumber, are equipped with pneumatic tires for operations over rough terrain. Loads are stacked for convenient fork truck handling.

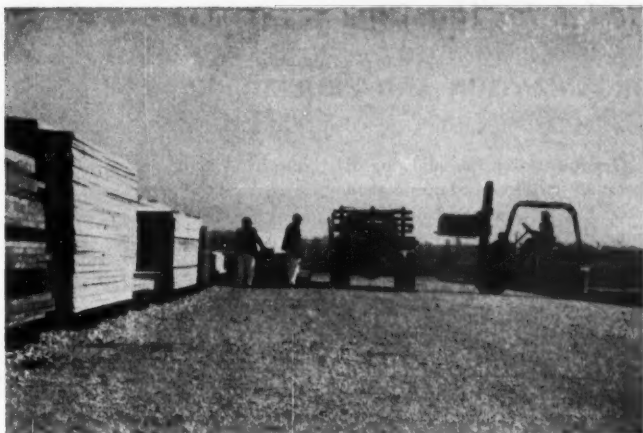


FIGURE 11: PIPE HANDLING AND STORAGE. A 15-ton pneumatic tired mobile crane is used to handle pipe in the yard. Crane is shown equipped with a two-leg chain sling for safe handling of the lengthy loads.

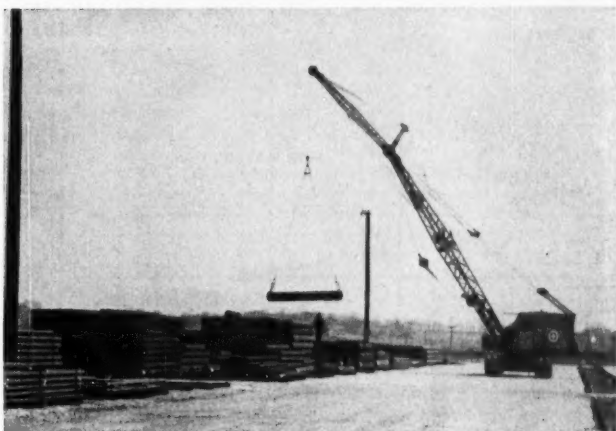


FIGURE 12: DRUM STORAGE IN THE YARD. Palletization has extended into this phase of handling and storage: it allows stacking three tiers high. One fork truck is shown here loading drums into a highway carrier.



Design for Handling . . . (Cont'd) . . .

ORGANIZATION AND PROCEDURE:

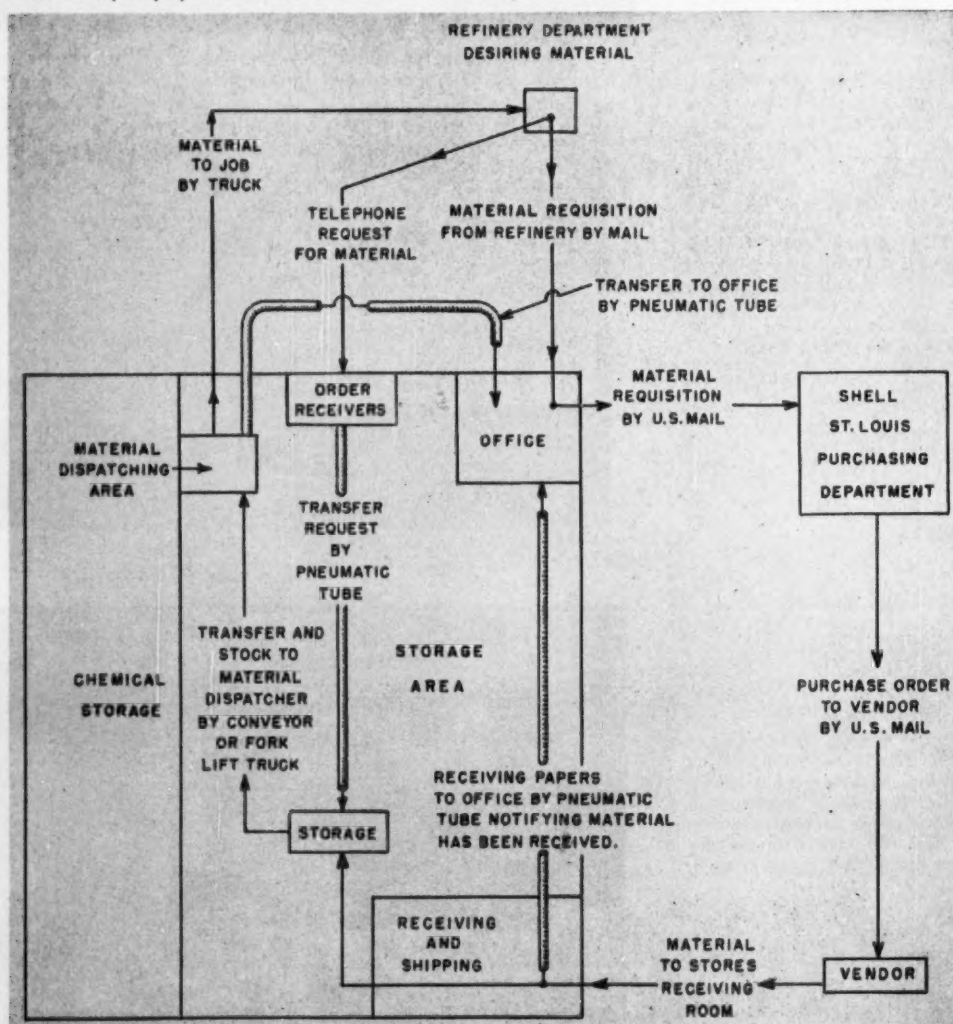
Organization: Consolidation of operations at the new Stores location naturally permitted a general streamlining of procedures plus pin-pointing of responsibilities which had heretofore been impossible. The resultant Stores Department organization now

consists of four sections; one section is responsible for material procurement and maintenance of stocks plus departmental accounting functions; another, for the receipt, storage, issuance, delivery, and salvaging of materials. An inventory and a priorities

group constitute the two remaining sections.

Duties: Office personnel responsible for procuring materials and maintaining stocks were departmentalized; for example, one man assumed these responsibilities for mechanical equip-

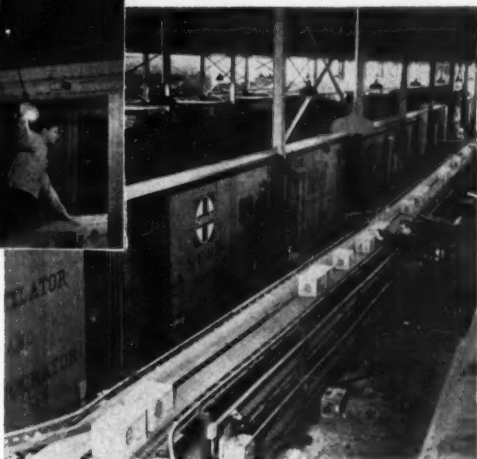
FIGURE 13: COMMUNICATION IS VITAL TO THE OVERALL OPERATIONS. This sketch shows the procedure involved in having an item placed in Stores stock and later procuring it for usage. Note the important role that pneumatic conveyors play in the coordination of the various operations: written messages are speedily dispatched.



ment, another for pipefitter materials, etc. Likewise workmen responsible for the actual storing and issuing of materials were departmentalized. One man became responsible for verifying that materials issued conform to the materials ordered and that they are delivered to the proper refinery location at the correct time.

Planning: Concurrent with the consolidation of operations and reorganization, a thorough study of existing procedures was instigated. To facilitate this study, the procedures in operation were laid out on procedure diagrams. The tentative diagrams were then distributed to personnel involved in the particular procedure being studied who indicated thereon their proposals. All proposals were taken into account and an attempt was made to arrive at the most workable procedure. Copies of the final procedure diagram were then distributed to interested personnel. The basic procedure now involved in refinery personnel having an item placed in stored stock and later procuring it for usage is shown as Figure No. 13.

Procedure: The department desiring that the item be stocked processes a requisition to the Stores Department. The man responsible for procuring the particular class of material involved upon verifying that neither the item nor a suitable substitute is in stock forwards the requisition to a Shell St. Louis Purchasing Department buyer who places the order. When the item is received, receiving and shipping room personnel verify that it conforms to the order placed after which it is transmitted into storage. Concurrently, receiving papers are forwarded to office personnel through the pneumatic tube system for accounting purposes. The same item when required is normally ordered from the Stores Department by telephone. The order receiver immediately prepares a transfer request and "shoots it by the pneumatic system to the proper departmentalized Stores attendant. The material ordered plus the transfer request is transported either by conveyor or fork lift truck to the dispatching station. The material dispatcher upon verifying that the material conforms to the order instructs the truck drivers regarding the material delivery and dispatches the transfer request again via a pneumatic tube to the office for accounting purposes.



UPPER LEFT: For handling inside a box car, a system of reel lights are spotted along the shipping dock. Operators take lights with them wherever they go, loading is made easier. ABOVE: This belt conveyor system along the shipping docks is adapted to handle 400 different types of packages. The belt is approximately four miles in total length.

Clever Ideas Aid Brewery's Shipping

A huge volume in outgoing loads, prompted the Brewing Corp. of America, Cleveland, to install a highly effective handling system on its shipping docks. The conveyor system shown above, which runs the length of these docks, is adaptable to handle 400 different types of packages of the company's beer and ale. The docks can accommodate 44 box cars and 17 trucks at one time. The conveyor belt is approximately four miles in total length.

Another problem, solved by the company, was that of providing sufficient light for operators inside the box cars. Now, a series of lights, extending from reels attached to the ceiling can be pulled into the cars. When a workman enters a car, the light is within arm's reach. When he is through loading, a slight tug on the cord reels it up. The cord is never underfoot. The reel lights have replaced plug-in extension cords with outlets between every two cars.

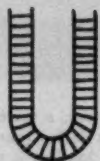
**If You Have These Problems
In Laying Out
Your Conveyors . . .**



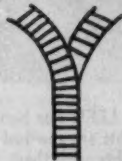
**Conveyors
Around
Posts**



**Conveyors
Which Flow
Contours
of Walls**



**U-Shaped
Conveyors
Which Must
Make 180° Turns**



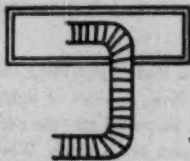
**Y-Shaped
Conveyors**



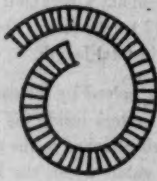
**Conveyors that
Snake Back
and Forth**



**Conveyors That
Make 90° Turns
Around Corners**



**Box Car
Conveyors That
Travel Into
Rail Cars, Trucks**



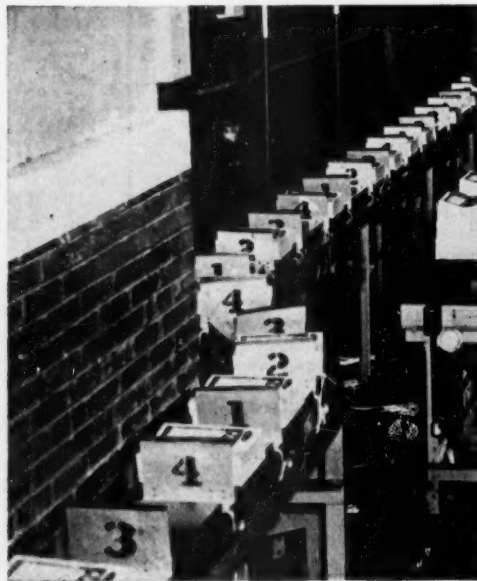
**Spiraling Conveyors
That Often Form
Spiral Chutes**

Here Are

Conveyors That

Countless thousands of feet of valuable production and storage area is wasted in many plants because of irregularly-shaped walls, building posts and columns and other obstructions. The area in and around these obstructions is often unused because conveyors and other fixed handling systems are not designed to take advantage of this space.

In the October issue of FLOW, a story on Oblique Stacking detailed ways of storing palletized loads around building obstructions. This month this report pictures and describes how various types of conveyors can be arranged to travel around posts and columns, follow the irregular contour of building walls, make 90° turns around corners through doorways and into rail cars and highway trucks, etc. You will also find how you can



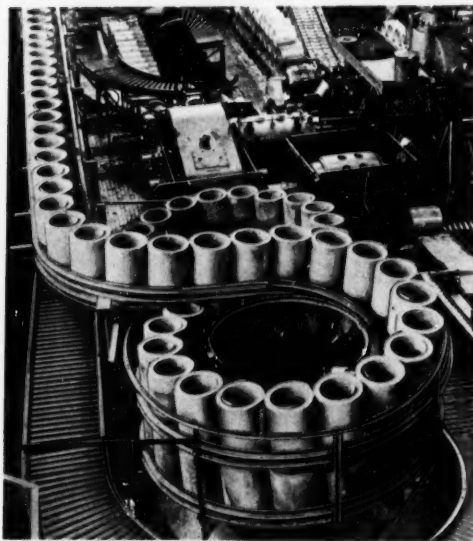
CONVEYORS THAT FOLLOW THE CONTOUR OF THE WALL: note how this inverted overhead trolley conveyor allows loads to travel along the wall even though it juts out at one point. Wasted space is used.

Go Around Bends And Corners

arrange conveyors to snake back and forth in irregular patterns, to suit your individual needs. You can also learn about accessories that will make your present installations more flexible.

Are All Types Of Conveyors Adaptable?

Actually, there is no type of conveyor than can not be set up to make 90° turns, to go around corners, etc. However, some powered equipment may have to be set up independently with guides or short transfer sections acting to move the goods from one conveyor to the other. In the powered group, chain, flight, trolley, and others are ideal for complex arrangements and provide maximum vertical and horizontal flexibility.



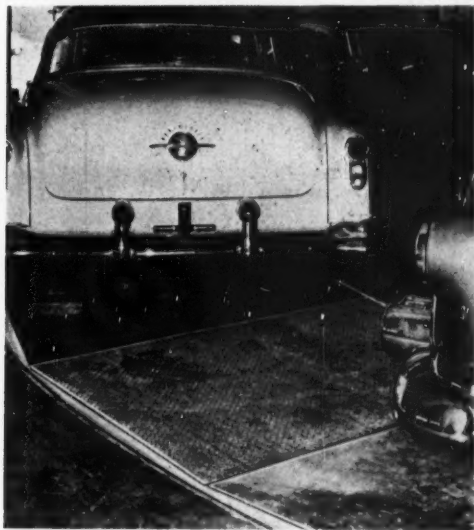
CONVEYORS THAT TRAVEL IN MINIMUM AREA IN VERTICAL PLANE: here is a spiral conveyor which enables loads to be moved in a minimum space from under the ceiling to working level near the floor.

Gravity roller and wheel conveyors are likewise suitable for layout according to irregular patterns. As you will see from the illustrations, gravity conveyors can be arranged in a variety of layouts to suit specific requirements.

Here are some examples of common problems and their solutions.

Do These Sound Familiar?

The Stewart-Warner Co., Chicago, has the problem of assembling metal units resembling caps. Because the area in which these operations are performed is not sufficient for lengthy straight lines, the company had to install conveyors which would double back on themselves in the confined area.



CONVEYERS THAT ARE FLUSH WITH THE FLOOR THAT TRAVEL AROUND BENDS: during final operations at this automobile plant, cars are transferred between parallel assembly lines on the unique floor conveyor.

Conveyors That Go Around Bends And Corners—cont.

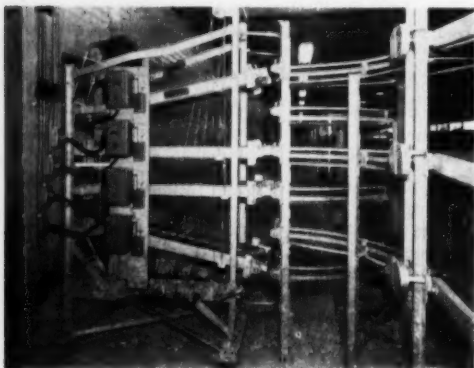
The company figured out that an inverted overhead trolley conveyor would provide the necessary flexibility and also could carry the cap-like units (the caps are placed over the trolley pins which stand upright). Actually, this conveyor is engineered into a complicated layout which includes several 90° turns in addition to the 180° turn at one end of the line.

A similar conveyor has been installed at the Crowell-Collier Publishing Co., Springfield, Ohio, where trimmer lifts of magazines are wormed around building obstruc-

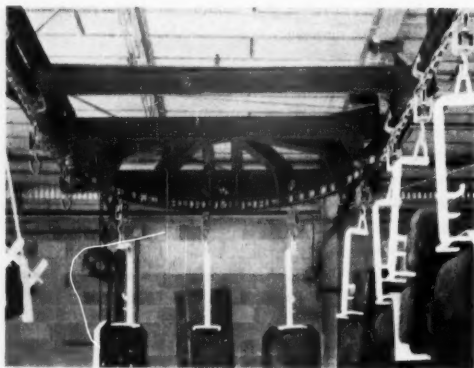
tions and carried to this plant's packing and shipping departments. This conveyor also transports loads up and down sharp inclines without the magazines shifting, thus eliminating the necessity of rejogging before reverse stacking.

In general, all sorts of commodities—sheets of printed material, open containers of chemicals, open boxes of small machine parts, containers of in-process foodstuffs, etc., can be transported from final production to packing and shipping areas without the danger of shifting (in the case of stacked loads) or spilling (in the case of boxes of small particles) on this type conveyor.

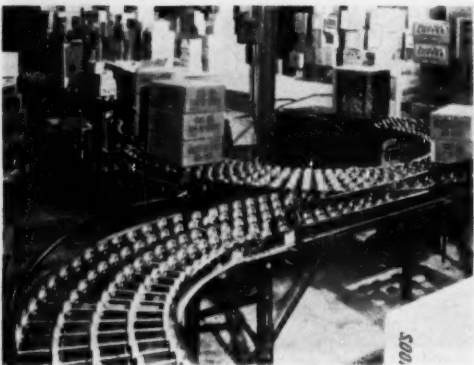
(STORY CONTINUES ON PAGE 94)



CONVEYORS THAT GO AROUND CORNERS THROUGH WALLS: These flexible wire belt conveyors can be switched to the conveyor coming from the right or the one from the left by raising or lowering sections.



CONVEYORS THAT GIVE FLEXIBILITY UNDER THE CEILING: this overhead chain conveyor can be designed to travel in any direction or plane, makes maximum use of normally unused space under the ceilings.

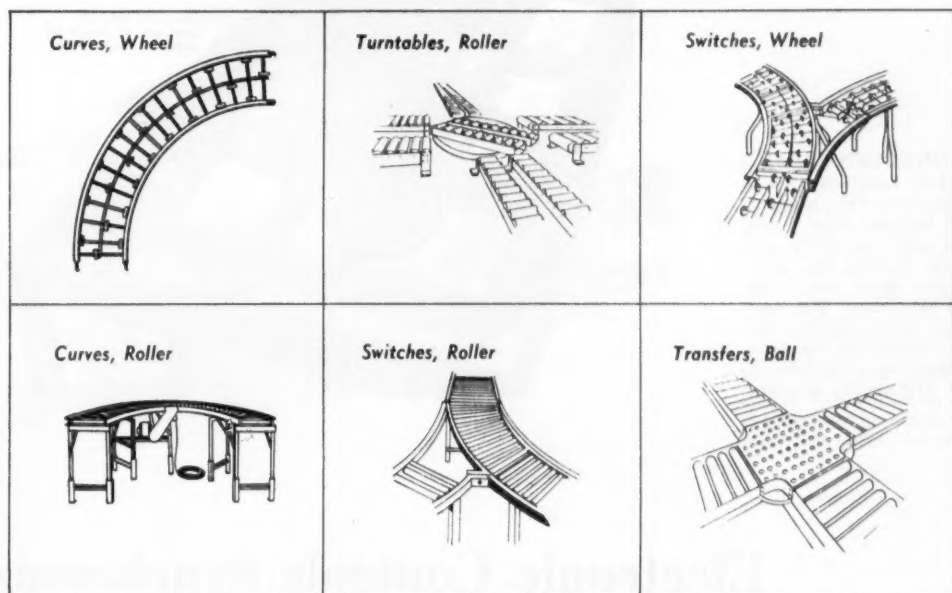


CONVEYORS THAT ARE ARRANGED IN A VARIETY OF LAYOUTS: through the use of switches this gravity wheel conveyor snakes off in various directions to utilize all available space, travel adjacent to stored material.



CONVEYORS THAT GIVE MAXIMUM FLEXIBILITY DURING ASSEMBLY: note the flexibility these conveyors give in crowded production areas. The lines may be installed to snake around machines and other obstacles.

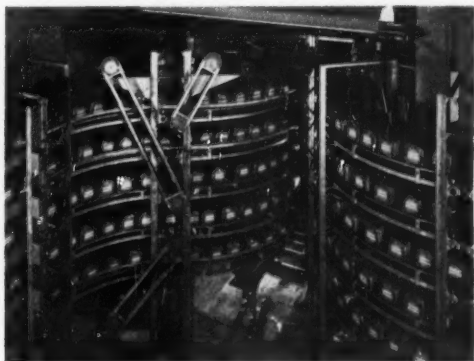
***These Conveyor Accessories Are Designed For Gravity
Wheel And Roller Types To Increase Their Flexibility . . .***



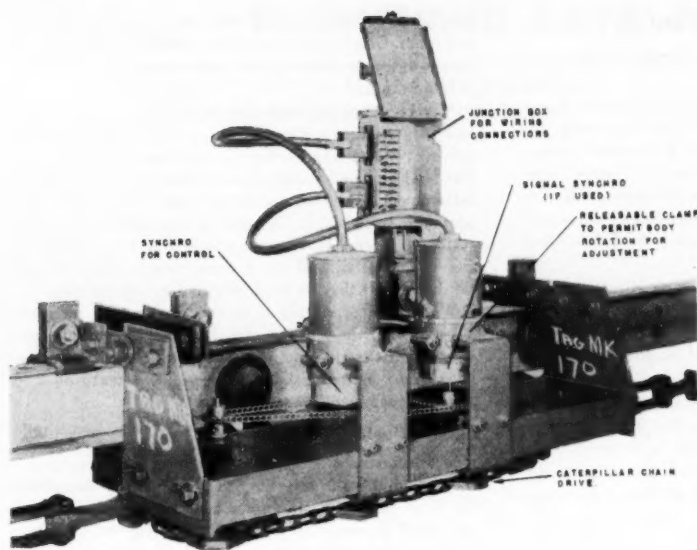
***. . . And Adapt Existing Equipment And Installations
For Going Around Bends, Corners, Obstructions, Etc.***



CONVEYORS THAT GO AROUND CORNERS INTO BOX CARS: this powered conveyor can be moved up and down and from left to right without stopping. It may be arranged to discharge at the exact point of loading.



CONVEYORS FOR CARRYING PERISHABLES TO SHIPPING, FAST: Two five-tier flexible wire belt conveyors convey bread loaves from wrapping room through wall to both sides of loading room where trucks are loaded.



INSTRUMENT SYNCHROS also may be used to synchronize two or more drives. A transmitter on the master drive and a control transformer for each follower are included. The use of synchros is simple, since these units may be placed on small caterpillar units contacting the chain near the transfer points rather than on the drive itself.

Conveyor Speeds

Are Synchronized and Controlled to Meet Speed Variations

mechanical engineer—a sound steel frame supporting a mechanical propelling device. Later, simple controls were added, such as a limit switch after the unload point to insure that the work was unloaded and did not continue on, or fall off the end of the conveyor. These still were within the design ability of the average mechanical engineer.

Soon, however, the controls became more complex and demanded combined electro-mechanical devices which were necessary to regulate production at better levels. This then was when the electrical engineer was called in to coordinate the mechanical control devices.

Years ago, when it became necessary to synchronize conveyors and to make them hold a definite ratio of operation, one to the other, the mechanical engineer thought of line shafts, of driving one conveyor by another by mechanical power take-offs, but he soon found that these systems might spread over more than one floor and to areas perhaps a mile long and one-half mile wide. He

abandoned the line shaft idea and called in the electrical engineer as a permanent part of the design team.

The electrical engineer suggested the use of direct current running all motors from one motor generator set or D.C. source. This was tried and found lacking because of the characteristic of drop under load of the average D.C. motor. This would not work out, because if sales required 50 units per hour and the system fell to 45 units in one place, 42 in another section and even 50 in other sections, the net result was only 42 units.

Early Developments In Electronic Controls

We made a number of installations using D.C. motors with a motor generator set. In the morning before full load was applied, the conveyors produced at slightly more than the desired production rate, but by 10 a.m., when

(TURN THE PAGE PLEASE ♦)

Electronic Controls . . . (Cont'd.)

fully loaded, they had fallen down enough in speed to produce a loss in production rate.

We finally corrected this deficiency by calling in an electronic consultant who designed a device which, by means of a tachometer generator on a conveyor motor and regulating the field voltage of the D.C. motor, kept this system in fairly close alignment. However, this was again an expensive device and a gadget full of tubes and relays which maintenance looked upon with distrust and disfavor.

The whole system was costly because direct current was not the common electrical system. Plants felt they should have stand-by motor generator sets and D.C. motors to guard against down time, and maintenance crews were not too happy about this scheme.

During all this development, we managed to hang onto our electronic consultant and approached the problem of controlling an A.C. motor combined with a variable speed transmission. The variable speed transmission referred to is that type which uses a belt, driven by a conical pulley, driving an adjustable conical pulley on the variable speed shaft of the unit. By means of an adjusting screw, the mean diameter of driver and the driven pulley may be changed to change the speed of the drive.

As long as ten years ago we had controlled a series of A.C. motors and variable speed transmissions combined by means of relays, time delay relays, push buttons, limit switches and servo motors actuating the speed changing screw. We had a monstrosity that worked only if all the components were in good working order. It was, frankly, a failure.

Our electronic consultant developed a device to permit a remote speed change and balancing of the drives for

speed and pull, but it again was a monster full of relays and tubes. One look at it and the purchaser's maintenance crew wanted to throw it out and refused to understand or maintain it.

A story connected with this particular control is interesting. We quoted a furnace company on a heavily-loaded conveyor which ran through a vitreous enamel furnace. The load and pull required more than one drive (this is determined by the safe working load of the chain most adaptable to the job). Two drives were indicated and the customer wanted to vary the speed in a 5 to 1 range remotely and at will. When it came time to ship this job, we discovered that its final destination was Sweden.

We had incorporated in it two of our new monsters. All we could do was ship the job, making maintenance and installation instructions, and pray. That was six or seven years ago, and to this day we have heard no complaint or comment.

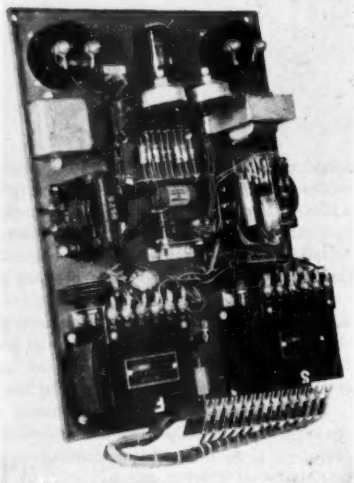
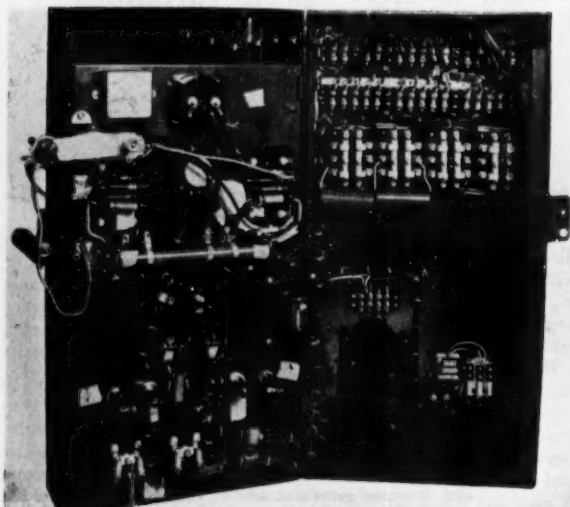
Later Developments

So we started over again to develop a simple method to accomplish the purpose. We finally came up with a device based on magnetic amplifiers and reduced the tubes in our panel to one small 6SN7 tube and cut out all relays. We built the whole control unit in all parts as package units or a set of package units which could readily be attached to any drive having an induction motor and any type of variable speed transmission capable of being varied by a small servo motor.

All parts of these packages were made up of plug-in type units. The servo motor unit was made for quick replacement and was set up so it could be connected in a matter of minutes.

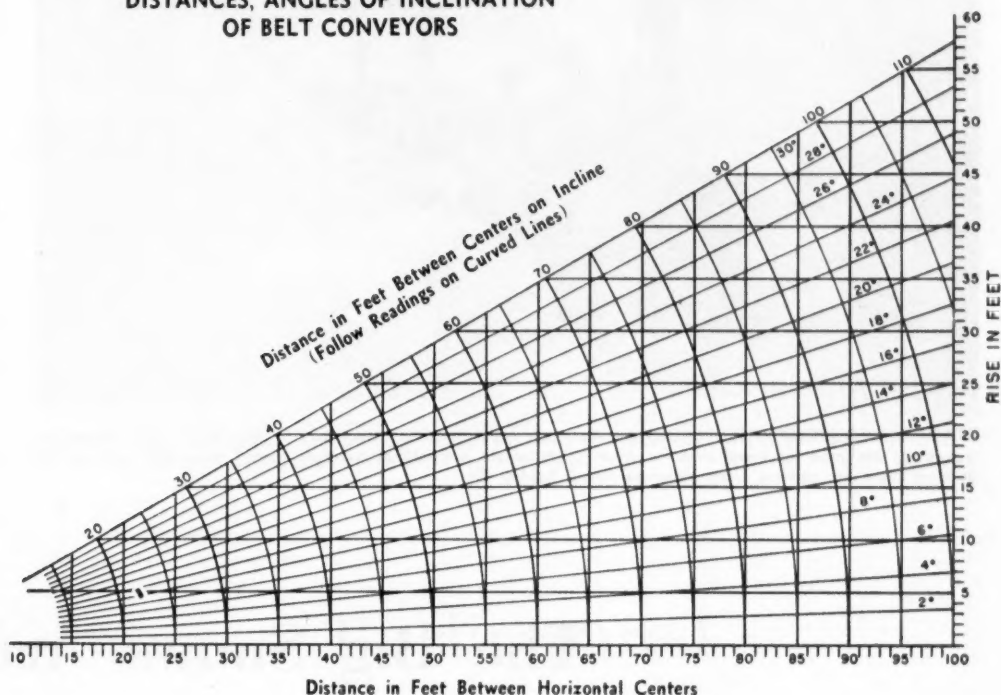
To further understand part of the problem we had been

(TURN TO PAGE 88)



EARLY ELECTRONIC CONTROLS included a device (left) that permitted a remote speed change and balancing of the drives for speed and pull, but had too many relays and tubes. Another (right) connected all the servo motors together in an attempt to control speed from one point, but failed because no two servo motors operated exactly alike.

HORIZONTAL, VERTICAL, INCLINED CENTER DISTANCES, ANGLES OF INCLINATION OF BELT CONVEYORS



For Converting Degrees to Per Cent and to Rise in Inches Per Foot

Degrees	Per Cent	Inches Per Ft.	Degrees	Per Cent	Inches Per Ft.
1/4	.43	7/16	22	40.40	4 21/32
1/2	.87	1/8	23	42.44	5 3/32
3/4	1.30	3/16	24	44.52	5 11/32
1	1.74	1/4	25	46.63	5 23/32
2	3.49	1/2	26	48.77	5 27/8
3	5.24	3/4	27	50.99	6 1/8
4	6.99	7/8	28	53.17	6 1/4
5	8.74	1 1/16	29	55.43	6 1/2
6	10.51	1 1/8	30	57.73	6 1/2
7	12.27	1 1/4	31	60.08	7 1/32
8	14.05	1 1/2	32	62.48	7 1/4
9	15.83	1 3/4	33	64.94	7 1/2
10	17.63	2 1/8	34	67.45	8 1/32
11	19.44	2 1/4	35	70.02	8 1/4
12	21.25	2 1/2	36	72.65	8 1/2
13	23.08	2 3/4	37	75.35	9 1/16
14	24.94	3	38	78.12	9 1/8
15	26.79	3 1/4	39	80.97	9 1/4
16	28.67	3 1/2	40	83.91	10 1/16
17	30.57	3 3/4	41	86.92	10 1/8
18	32.49	3 7/8	42	90.04	10 1/4
19	34.43	4 1/8	43	93.25	11 1/16
20	36.39	4 1/4	44	96.56	11 1/4
21	38.38	4 1/2	45	100.00	12

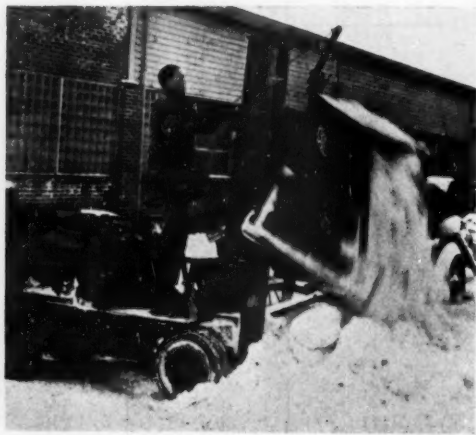


TRACTORS EQUIPPED WITH BLADES are especially handy when it is necessary to clear large drifts. Caterpillar treads are designed for travel in drifts, over rough terrain. Oftentimes, tractors "doze" snow into piles, cranes deposits snow into carriers. User: Firestone Tire & Rubber Co.

The Big Snows Are



THIS PORTABLE SNOW LOADER chews up piles and feeds to waiting vehicles. The loader is extremely valuable for removing piles of snow made by other equipment clearing traffic lines.



THIS FORK TRUCK is equipped with a scoop which picks up snow as the truck moves along. The operator releases the load by pulling a cord. User: Schramm Inc., W. Chester, Pennsylvania.



FRONT-END LOADERS make quick work of snow. One man can pick up a load and throw it off to one side or carry it to a central collection vehicle or bin. Scoop is lowered to engage the load, is raised during travel, is rotated forward to discharge. User: Union Stock Yards, Chicago.

Coming — Be Prepared



SCOOP ATTACHMENT is mounted on the front of a highway truck, discharges snow, etc., back in the carrier. Power is controlled by operator in cab; there is no manual effort involved.

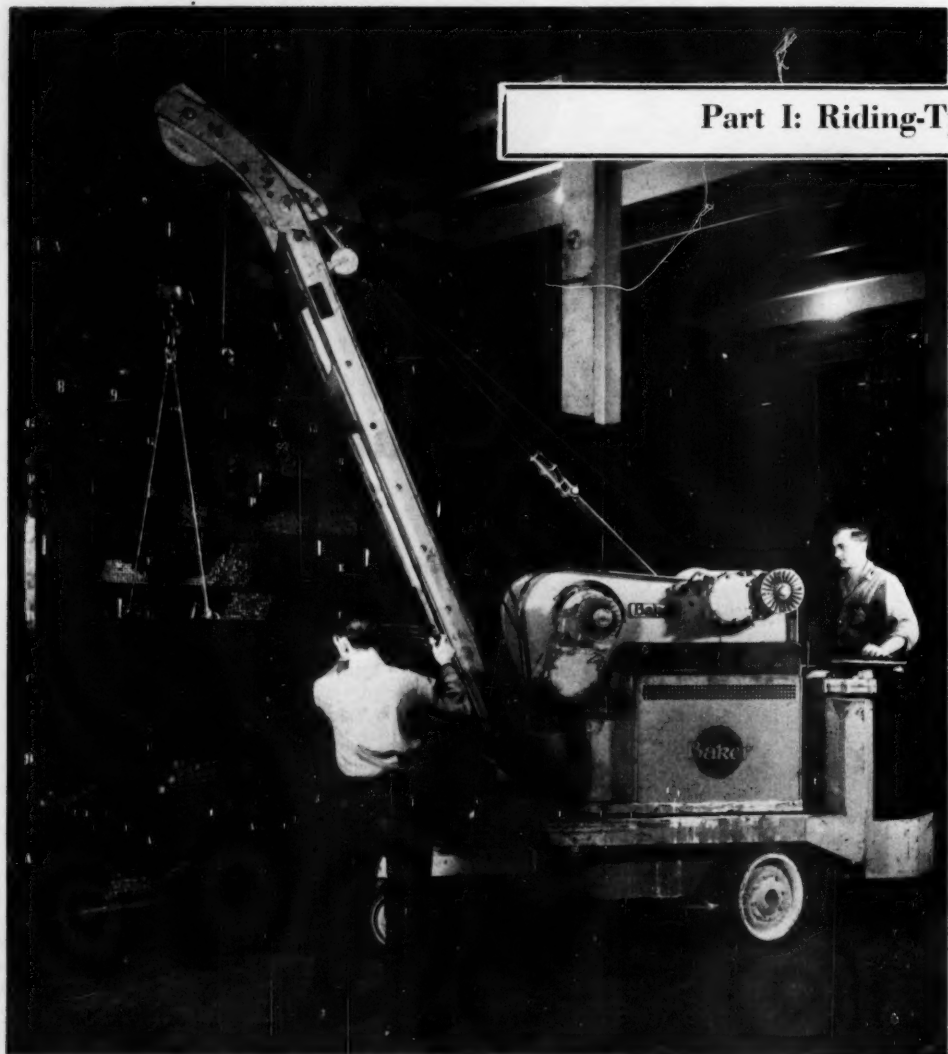
Has it occurred to you how much snow costs you each year. If it clogs up your driveways, your outside storage areas, your shipping and receiving docks, it can cost you a lot of money in wasted time, excess physical effort, general handling inefficiency.

Several years ago, FLOW presented a round-up of types of equipment used to handle snow. Within the last few months, we have received a large number of letters asking us about additional equipment used for this purpose. In answer to these inquiries, and to aid many more of our readers, herewith are five types of equipment which can save you time and money.

You will note that most types pictured are standard equipment, which are usually employed for other handling tasks. This may mean that you can get additional service from your present equipment. If we can give you more details, let us know.

Floor Cranes Make For

Part I: Riding-Type

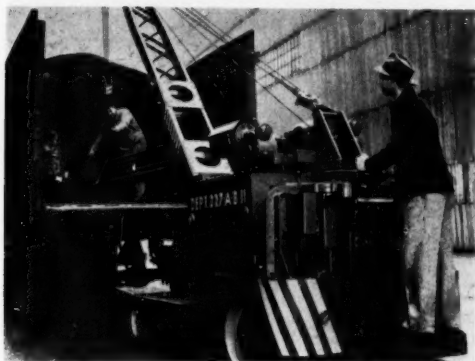


REMOVING BAR STOCK FROM STORAGE: this riding-type, power-operated floor crane takes the place of back-breaking physical effort so often a part of

this operation. Slings encircle the load which is pulled from (or guided into) a pigeon-hole rack. The crane transfers the load a distance to the next operation.

Great Flexibility

Power-Operated Floor Cranes



LOADING BARS ON A HIGHWAY TRUCK: a 10,000-lb. crane reaches into a highway carrier to deposit its load. Thus, the heavy bars are deposited at the final loading point, eliminating additional handling.



SELF-LOADING OF BULKY LOADS: this combination crane and platform truck works in narrow aisles, swings loads from either side onto its own platform.

Have you ever thought of how floor cranes can fit into your operations. Actually, there are a lot of firms that don't even know that such equipment exists, or if they do, don't know quite how they could use such equipment.

In fact, floor cranes come in several different varieties, and may be used for dozens of different applications. Basically, the three types are: (1) power-operated, riding-type floor cranes; (2) manually-operated units; (3) those models which are mounted on the bodies of highway trucks.

Which To Use

One of the main features of floor cranes is that they are easily moved about the plant, can carry almost any type of load, and their long boom can reach into inaccessible places.

If you are handling very heavy loads over long distances, you are probably better off with a power-operated, riding-type crane. For this type of load and under these operating conditions, this type means a minimum of physical effort, minimum traveling time, and an overall efficient handling job.

If your needs are not too great, if the loads are not too heavy, or if you are not traveling long distances, it may be that you can use a less expensive, manually-operated model. These oftentimes have more maneuverability for operating in confined quarters.

A lot of companies have found that for fast, effective loading and unloading of their highway trucks, cranes, mounted on the bodies of the carriers, do the job. Loads are hoisted onto the truck at the shipping point, then when unloading, they are lowered to the ground without the usual back straining by personnel. This equipment is especially valuable where trucks deliver goods to places which have no handling equipment of their own.

Some Specific Cases

What are some of the uses for floor cranes? Because of the shape of the load, long lengths of bar stock and

Floor Cranes . . .

similar items are very often moved by some type of crane. Very often traveling bridge cranes do the job. But, when handling on ground level, floor cranes can be called upon.

Sometimes, floor cranes will work in conjunction with other types of equipment. For example, in one of the photos, you can see a unit unloading bar stock from an incoming highway carrier onto a castered dolly for further transportation.

Floor cranes provide a valuable service in handling bar stock in and out of storage racks as shown in one of the exhibits. The boom feature makes it possible to reach

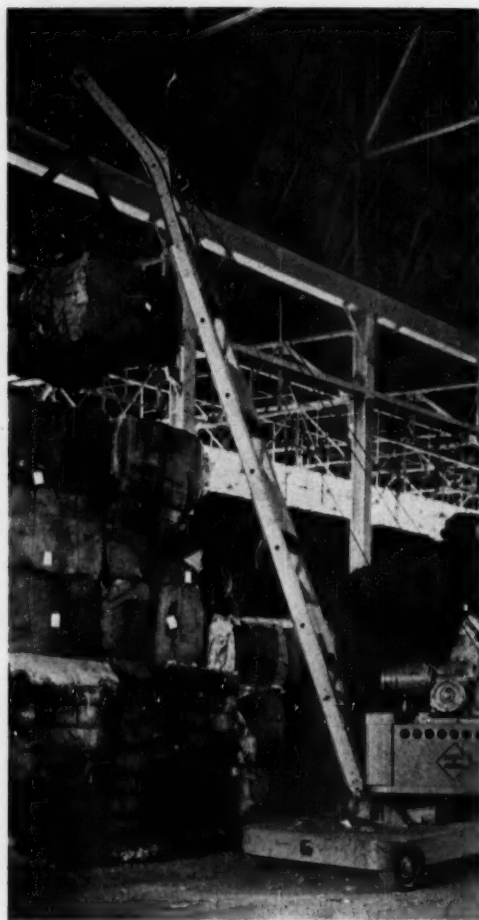
into storage locations, highway trucks and open-top rail cars, and over machinery and other obstacles.

Attachments Increase Versatility

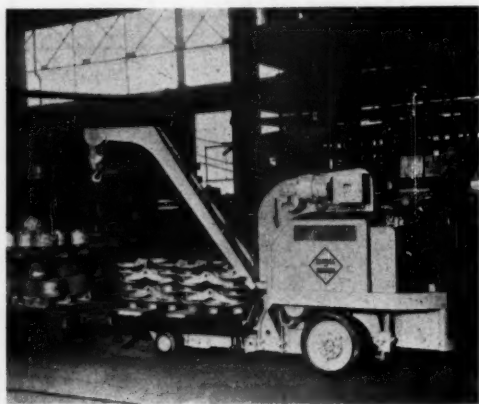
You will recall that in the July issue, we presented a survey on the various types of attachments which can be used with overhead handling equipment. These attachments, grabs, slings, tongs, etc., are often used in conjunction with floor cranes to increase their versatility.

For example, one day a crane may be equipped with a sling for handling bar stock, or a sheet grab for pick-

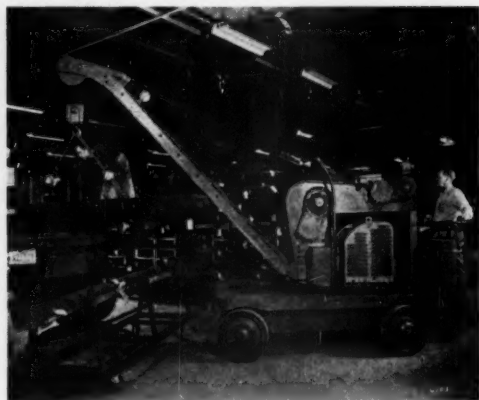
Part I: Riding-Type Floor Cranes (continued)



HANDLING BALES: a 6000-lb. crane has an extra long boom equipped with a clamp for handling bales of cotton. This clamp eliminates the need for a load-net. Note how boom reaches over obstacles.

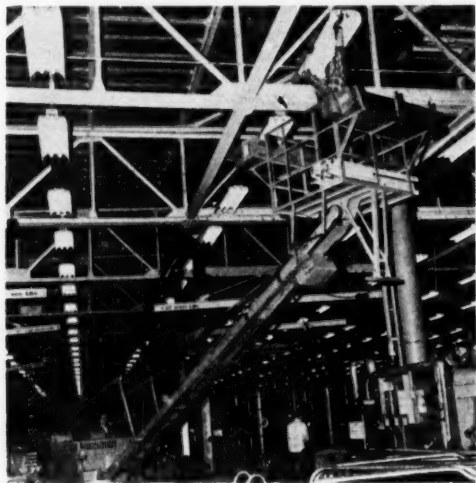


DOUBLE-DUTY CRANE: this combination low-lift platform truck and crane is shown towing one trailer load with a loaded skid on its platform. This type truck is commonly used for maintenance operations.

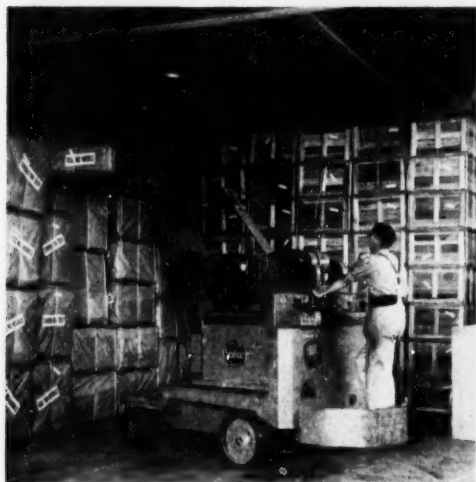


TRANSFERRING LENGTHY LOADS: long lengths of bar stock are removed from an incoming highway truck and placed on a concave-shaped castered carrier. The latter is used in congested areas around machines, etc.

Part I: (continued)

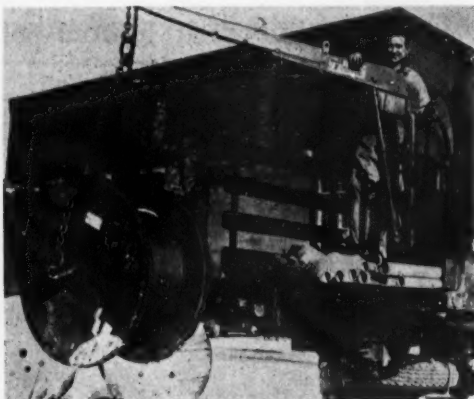


MAINTENANCE JOBS AS WELL: this 6000-lb. crane, equipped with an articulated platform is used for maintenance of lighting and other overhead equipment. Men and supplies are picked up with platform on floor.

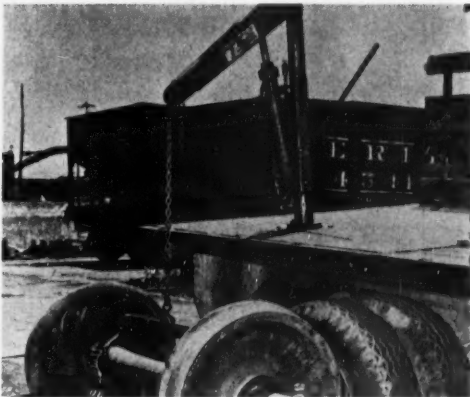


STACKING CARTONS, PACKAGES, CRATES: the use of vertical storage space is attained with this power-operated crane which is shown depositing a package on top of a stack. Slings are used to secure the load.

Part II: Highway Truck- Mounted Cranes



LOADING HEAVY REELS: this truck-mounted crane, hydraulically operated, hoists a heavy reel aboard a highway truck for delivery to the field. Operator controls the crane from a position on truck's body.



HANDLING VERY HEAVY LOADS: this axle and wheel assembly is easily hoisted aboard a highway carrier. Contrast this effortless loading with manual handling. Loads are similarly unloaded, quickly and easily.

Examples of Manually-Operated Cranes Follow ▸

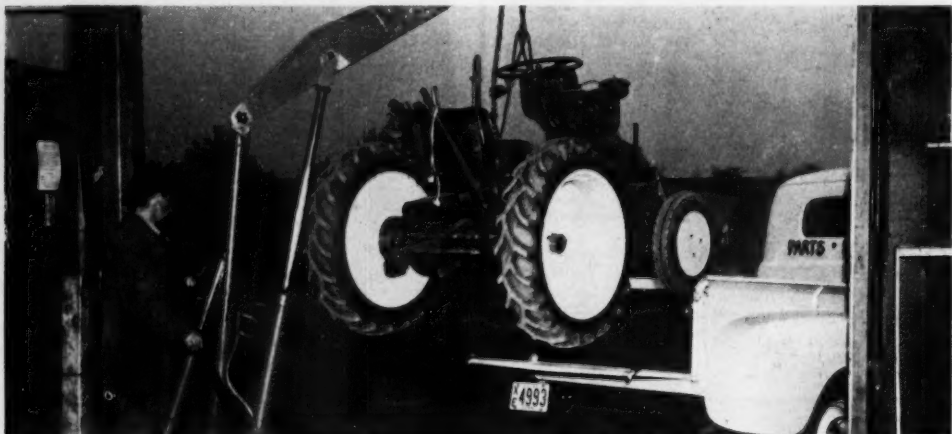
Floor Cranes . . .

ing up sheet steel. That same crane can be fitted with special tongs to handle bales or bags (see photo). And still another attachment, a tong, can be added to move coils or barrels.

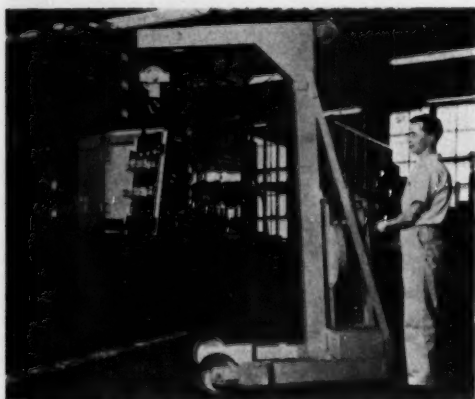
Floor cranes can be further utilized for maintenance tasks. Here is still another way in which these units will pay for themselves in a surprisingly short time.

Remember, the boom feature will allow you to reach out-of-the-way places that otherwise might be inaccessible. And with a platform attached to the crane boom (see photo), you can also service ceiling-hung equipment.

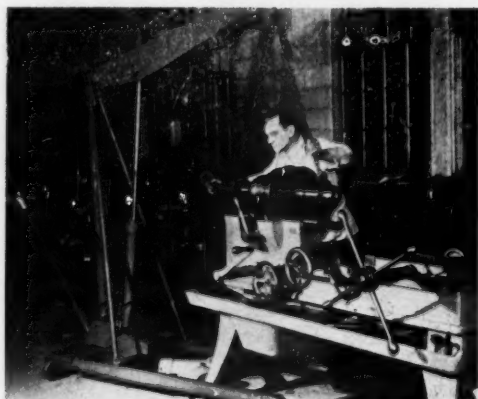
Part III: Manually-Operated Floor Cranes



FLOOR CRANES DURING SHIPPING: this tractor is moved from final assembly to an outgoing pickup truck. Floor crane makes easy work of moving the unit from the plant, reaching into truck to deposit the load.



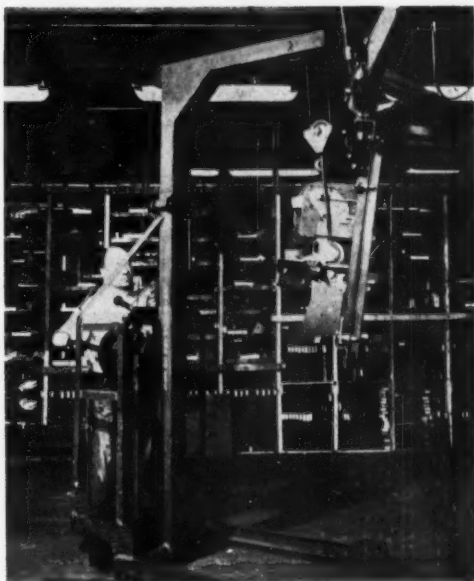
INSTALLING COMPONENTS: manually-operated crane is shown placing a circuit breaker assembly into position. Here is another example of how such handling equipment spots loads in confined and restricted quarters.



MAINTENANCE OR ASSEMBLY: operations which involve heavy parts or assemblies like the drive mechanism of this screw machine can be greatly simplified by using a crane to lift them out and set them in place.



HANDLING BARRELS: this crane is moved manually, but is electrically-powered for raising, lowering, revolving. Revolving feature permits precise spotting of loads. Grapple, shown, is designed for drum handling.

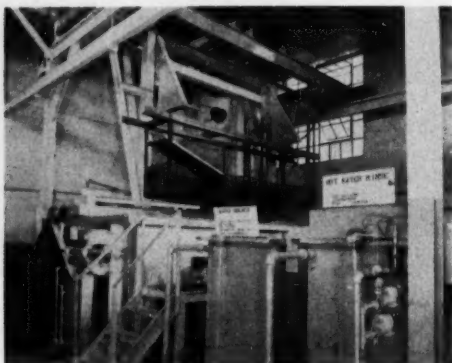


HANGING LOADS ON A MONORAIL: this unit hangs circuit breakers on a monorail trolley, eliminating excessive manual effort in handling the heavy loads. Crane is easily moved by push handles, is weighted, balanced.



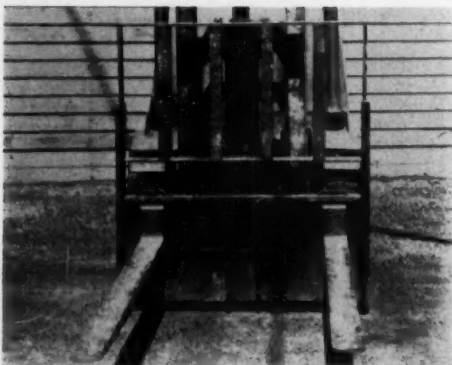
STACKING CRATED LOADS: extension beam of this floor crane is set at any one of twelve different lifting positions and lifting heights to reach over obstructions. It is shown in the second notch to clear those crated loads already in stock. Floor cranes, generally, are valuable for such tasks as reaching over obstacles.

COST CUTTING IDEAS . . .



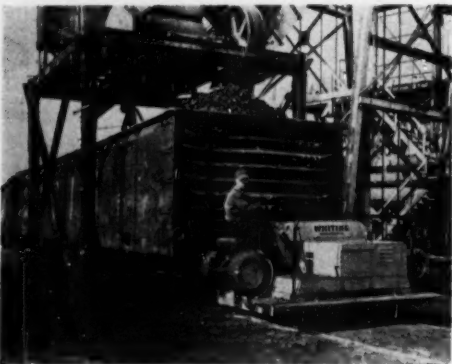
SPLIT SECOND CONTROL PROCESS . . .

In the heat treating operation shown here, there was a problem of raising a load $5\frac{1}{2}$ ft., moving it over seven ft., and lowering it $5\frac{1}{2}$ ft., in 10 seconds or less. The load is lowered into a tank with three ft. inside dimension. The material is aluminum and the 10 second interval is maximum to obtain correct hardness. A rigid guide frame was built so that the load would be guided into the quench tank. Operation of the crane through the cycle is automatic, being started by a pushbutton, or may be by manual push buttons of the variable speed type.



MAKING A FORK TRUCK STACK HIGHER . . .

How to make a fork truck stack six in. higher was a problem which faced American Cyanamid Co. recently. The second floors of two buildings are 136 in. high, while the yard department's fork truck had an upward reach of only 130 in. To get the added lift necessary, the two L shaped prongs of the forks were redesigned so vertical legs are 12 in. shorter. Forks now reach the added distance required. Since the revised forks cannot be lowered to the floor, lifts are made from platforms which are at least 12 in. above the floor. The new prongs can be interchanged with the standard forks in several minutes.

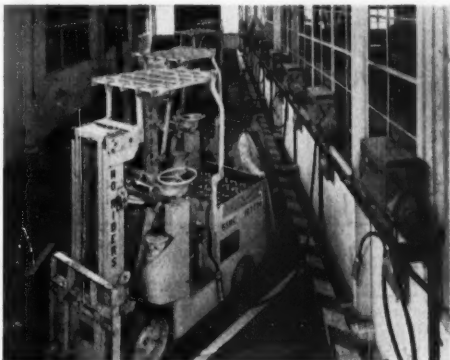


SPOTTING COAL CARS QUICKLY . . .

The coal loading cycle at Peabody Coal Co. has been speeded up greatly through use of this positioning device. The sequence of operation with this equipment is as follows: empty cars are spotted on tracks leading to the loading zone. Three cars are then moved to the loading hopper at one time. Two are filled, and as they are being moved out of the yard, the third car is being loaded. This unbroken loading procedure is made possible by the positioner's ability to change over to road wheel operation for fast transfer from one point to another.

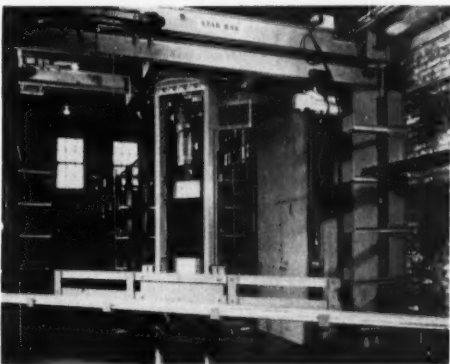
ELIMINATING CHARGING BOTTLENECKS . . .

"Just drive 'er in and hook 'er up" are the instructions given to fork-truck operators looking for a battery recharge at the Islais Creek Area, Marine Corp. Depot of Supplies, San Francisco. Eleven portable battery chargers have been housed in what had been an open driveway between two buildings merely by adding a connecting roof and a wall at each end. Shelf mountings were designed specially to minimize the likelihood of damage and make the chargers readily accessible to drivers, thus saving much time.



HANDLING AND STORING PIPE . . .

Complete pipe handling from gondola or flat car to pipe storage racks within a building is being accomplished by a hardware manufacturer through use of this "two-in-one" crane. It consists of an underhung crane from which is suspended an electric fork lift. A cantilever beam carrying an electric hoist has been mounted on the crane. To operate, the cantilever section is extended into the car and a sling is placed around a bundle of pipe. It then carries pipe from the car and lowers it on forks of the crane. Then operating the crane with a pendant push button control, operator moves pipe to storage area and deposits in rack.



HANDLING A VARIETY OF MATERIALS . . .

The utility of a mobile, rubber-tired yard crane is made the most of in the Chicago Heights plant of American Manganese Steel Division of the American Brake Shoe Co. Shown here unloading cars of coke with a $\frac{5}{8}$ yd. clamshell bucket, this 10-ton crane also unloads sand, and as a crane, handles raw material in the yard, lifts and transports flasks into the foundry. With a 33 in. magnet the machine handles melting scrap and castings.



**The Original Handling-Storage System Was
Considered Ideal At The Time . . . But A Later
Analysis And A New Installation Resulted In --**

Saving \$59,545 in Coil

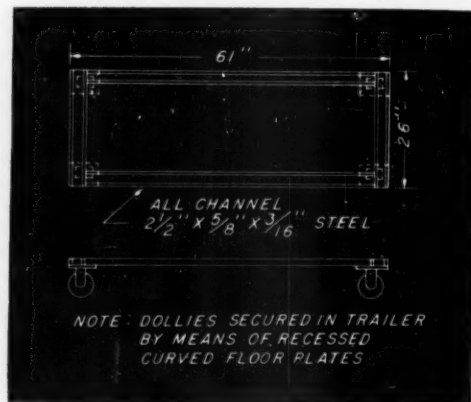
SUMMARY OF SAVINGS	
Area of Savings	Yearly Savings
Floor Space	
At the warehouse	\$39,000.00
At the manufacturing plant	1,665.00
Total Floor Space Savings	\$40,665.00
Material Handling	
At the warehouse	\$10,100.00
At the manufacturing plant	7,350.00
Total Material Handling Savings	\$17,450.00
Other	
Cartage Costs	\$ 1,430.00
Total Savings	\$59,545.00

SUMMARY OF COSTS	
Item	Cost
Coil Racks	\$102,800.00
Fork Trucks	19,400.00
Batteries and Charging Equipment	11,500.00
Rack Dollies	450.00
Total	\$134,150.00

The transferring of large quantities of coiled steel wire from freight cars to storage to production caused some serious problems for a manufacturer of nuts, screws and bolts. Undoubtedly other manufacturers using coiled stock have had the same problems. In this case, the solution lay largely in the development of portable, stacking-type coil storage racks, with special dollies, and the use of fork trucks for nearly all handling.

The company maintains a warehouse located approximately three miles from its manufacturing plant. This building is devoted primarily to the storage of the basic raw material—coils of steel wire ranging in diameter from 24 to 40 ins., and from 135 to 325 lbs. in weight.

Manual methods of handling these coils and utilization of storage space and labor were inefficient. The improvements adopted serve to highlight the need for periodic analysis of material handling operations—even though current methods, when first put into operation, were considered to be ideal.



Handling and Storage

Previous Handling Methods

Steps previously required in the handling of raw material from the time it entered the warehouse to the time it was delivered to the production machines were:

At The Warehouse

1. Unloading from box cars
2. Storing
3. Removing from storage
4. Loading into trailer for transfer to manufacturing plant

At the manufacturing plant

1. Unloading from trailer
2. Storage
3. Removing from storage
4. Delivery to production machine.

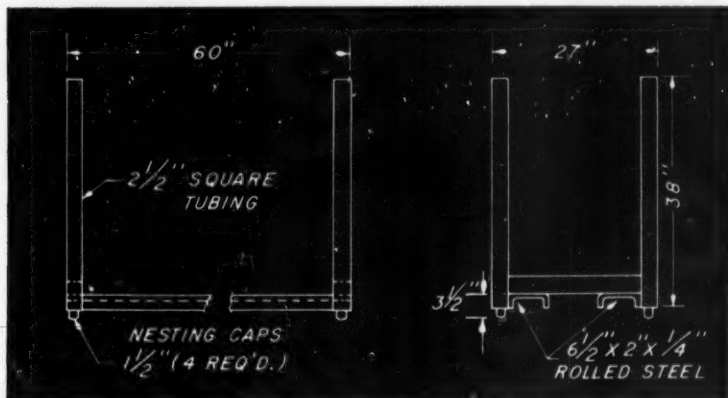
Each of these steps will be briefly discussed. All handling of steel coils at the warehouse involved 6,000-lb. in-

dustrial "ram-type" power-trucks. Handling at the manufacturing plant was accomplished with platform-type industrial trucks and skids.

Here is the year's First Prize winner in the material handling competition at the Illinois Institute of Technology. It was submitted by Shervin Freed.

Financed by the Wunsch Foundation, this competition is held at a number of universities and colleges every year to encourage the study and improve the techniques of material handling in all its phases.

THIS RACK has nesting caps on the bottom of each square tubing upright, which permits tiering three or four racks.

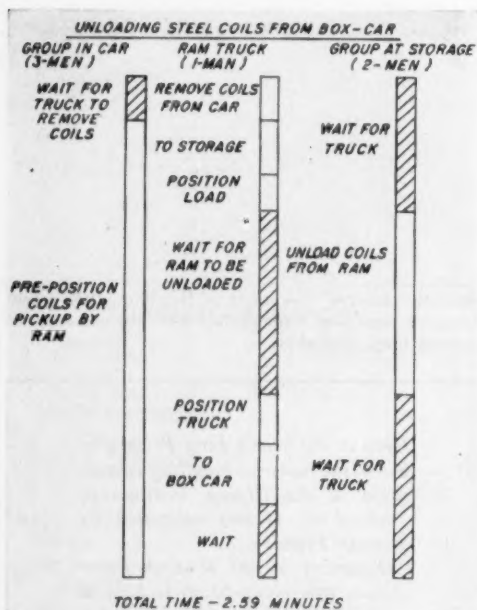


DOLLIES DESIGNED for racks are made of channels, have two rigid and two swivel casters. These units are designed for easy moves.

Savings In Coil Handling . . .

Unloading From Box-Cars

Three men worked inside the box car, rolling steel coils into a vertical position from which they could be picked up by the ram truck. About ten to twelve of these coils were set up in a row, one behind the other, so that the ram could enter the center of the coils. These coils were then picked up and transported to the storage area.



UNBALANCED WORK SCHEDULE AND IDLE TIME OF OPERATORS resulted in excess labor costs. Cross-hatched lines indicate idle time. This chart is typical of those developed for each individual handling operation to aid in examining methods improvements.

Storing

Two men were at storage to assist in removing the coils from the ram and in interlacing coils positioned horizontally on the floor to gain maximum utilization of space. With these methods, it was possible to obtain a dense block of material although the coils were seldom stored more than about 3 or 4 ft. high.

Removing From Storage

To remove coils from storage it was necessary to use two men working with the industrial truck driver. These men positioned the steel coils so they could be picked up more readily by the ram truck which then transported them to the truck dock to await shipment. The coils were temporarily set up in a staging area in a vertical position for ready pick-up when needed for trailer loading.

Loading into Trailer for Transfer to Plant

When the trailer was to be loaded, the ram truck picked up coils in the staging area and moved them to the

trailer. Three men working inside the trailer alternated in removing coils from the ram, rolling them into the trailer, and positioning them on the floor.

Unloading at the Manufacturing Plant

Two men working inside the trailer uprighted the steel coils, rolled them to the truck tail gate, and dropped them on a platform skid raised to the truck level. No dock facilities existed at the location where these coils were received; it was necessary to elevate the platform of the industrial truck to receive the coils.

Storage at the Plant

About 70% of the material loaded on platform skids was stored on the floor. Due to a lack of floor space for storage, the remaining 30% of material was stored in permanent type racks consisting of three tiers, each about 3 ft. in height. To position coils in these racks, it was necessary to slide them off the platform skid into the racks—an awkward, strenuous, and hazardous operation usually requiring two men. When loading coils into the upper tier of racks, the men worked on the 3 x 5-ft. platform skid which was raised to a height of about 6 ft.

Removing from Storage Racks

The procedure for removing steel coils from the permanent type racks and positioning them on platform skids was essentially the reverse of that described in the preceding paragraph.

Delivery to Production Machines

Steel coils were transported to the production machines on platform skids, unloaded, and positioned as required.

Problems Arising From Previous Handling Methods

The old handling methods produced two general problems: Poor utilization of space and poor utilization of personnel. These are discussed separately for the warehouse and the manufacturing plant.

At the Warehouse

Poor space utilization resulted in the warehouse because material was not stored to take advantage of vertical storage area and the use of ram truck equipment required very wide operating aisles.

Due to manual handling methods it was not safe or economical to pile the heavy steel coils more than 3 or 4 ft. high.

The ram truck, with an overall length of 16 ft., required a 17 ft. operating aisle. Calculations showed that in the major coil storage area aisles accounted for approximately 60% of the total floor space.

Poor utilization of personnel was brought about through the large number of employees needed to handle the material.

Generally speaking, the more men in a group working on the same operation the more difficult it was to balance the work load and avoid idle time. For example, when unloading material from box cars, the two men used to help remove coils from the ram and position them in

(TURN TO PAGE 151)



Stacking double-tier pallets of keg beer at The F. & M. Schooner Brewing Co., Brooklyn, N. Y.

Lay it on the line...

multi-ton, multi-tier, palletized or otherwise . . . place load after load in exact formation with *untiring* Towmotor fork lift trucks. Towmotor teams up with 25 specialized attachments to speed "pushbutton" handling of *all* types of material. For your copy of "Man Hour Thieves," packed with timely production tips, and name of your nearest Towmotor Representative write Towmotor Corporation, Div. 8, 1226 E. 152nd St., Cleveland 10, Ohio.

TOWMOTORS
IN ACTION
IN U. S.
INDUSTRY

TOWMOTOR
THE ONE-MAN-GANG

**FORK LIFT TRUCKS
AND TRACTORS**

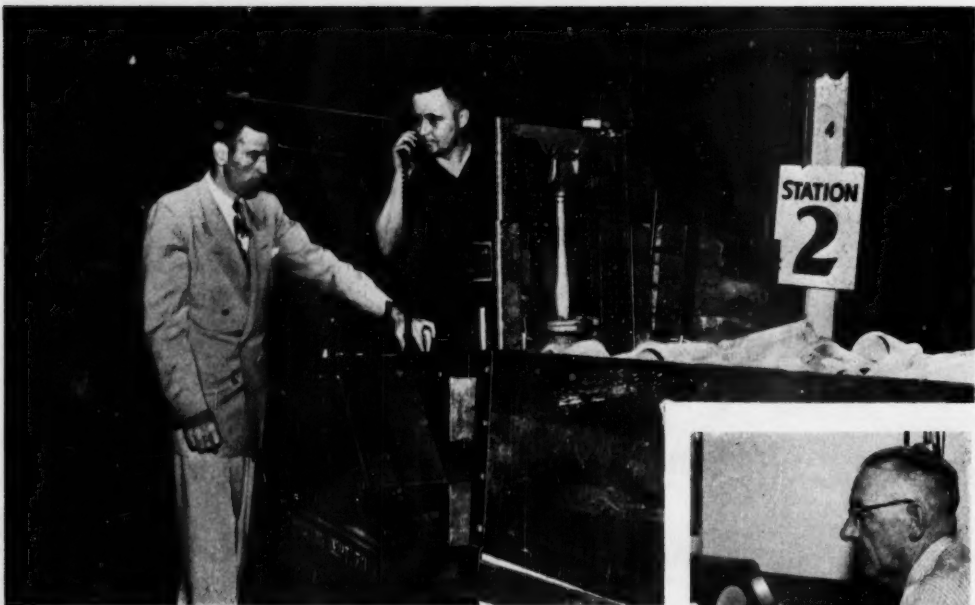
Since 1919

RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

Circle No. 49 on Reader Service Card for more information

FLOW • NOVEMBER, 1952

85



FORK TRUCK OPERATOR (above), gets an order from the dispatchers office (inset) for transfer of material. The two-way radio system directs the operations of shop trucks in eight buildings covering 57 acres. The system, because of the tremendous savings in manhours and more efficient overall handling is expected to pay for itself in six months.



Two-Way Radio Installation Pays for Itself in Only Six Months

As proof that a two-way radio system need not be big capital investment, here's a system which was installed by Reo Motors, Inc., Lansing, Michigan, which is expected to pay for itself within six months. A central dispatcher issues orders to drivers throughout eight buildings which cover a total of 57 acres.

There is also a dispatching station in the office of the material handling superintendent who can thus have a complete picture of shop truck operations at any time he desires. Also, he can issue orders whenever necessary.

Specific Improvements

Benefits resulting from the new system include: (1) substantially lower costs, (2) fewer trucks and operators needed for the existing work load, (3) faster and more

efficient service, (4) drivers can be reached immediately, (5) two-way exchange of information, and (6) no disturbance to other employees.

The System Has Other Uses

Reo's station wagon trouble-shooter has also been equipped with radio. Since the 30-watt, short wave master transmitter has a radius of 22 miles, valuable time can be saved in picking up urgently needed material from Lansing area suppliers. Likewise, newly arrived "hot stuff" at railroad and truck terminals can be quickly picked up.

In case of emergencies, the radio-equipped shop truck closest to the trouble can be on the scene in 90 seconds or less. Others will be on the job a minute or two later at the most.

Teletype Corporation

installs

2000 TON CAPACITY UNISTRUT® Bar Stock Rack

Pictured above is a ten section rack designed by Teletype and UNISTRUT engineers to conveniently handle the huge inventory of screw machine, milling and punch press stock needed to insure efficient, high production.

Each section is 8' high, 10' wide and 10' deep, and contains 100 10"x12" compartments designed to carry a 4000 lb. load. Note the installation's simplified construction—only five basic lengths of the same size channel and five different types of fittings were used throughout the entire structure.

With UNISTRUT framing there is no drilling, no welding, no special tools or equipment needed. Engineering is simplified—all you do is cut channel to size and bolt fittings in place. The UNISTRUT system is easy to work with, completely adjustable and reusable, provides great strength without bulk. Give it a trial in your business.

FOR DEFENSE PRODUCTION—Every day the value of UNISTRUT products is being proved by their use in Defense Industries and Armed Services installations where flexibility, and assembly and erection speed count most.

Representatives and Warehouse Stocks in Principal Cities
Consult your Telephone Directories



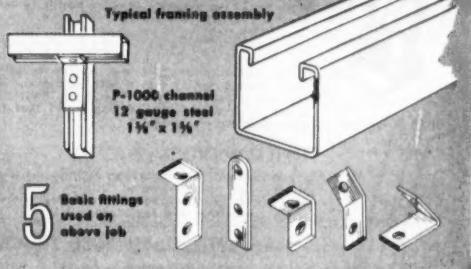
THE WORLD'S MOST FLEXIBLE ALL-PURPOSE METAL FRAMING

UNISTRUT Products
are
Bonderized

U. S. Patent Numbers
2327587 2329815
2345650 2363382
2380379 2406431
2541908
Other Patents Pending

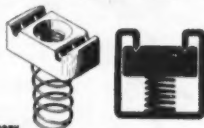


Saves
storage space,
speeds handling,
increases safety,
cuts costs!



Only UNISTRUT

offers this Spring-held Clamping Nut which ties together both sides of the slotted channel and forms a Box Section at points of connection for greater load strength.



Write today for your **FREE** copy of 24-page fully illustrated Catalog No. 600—Racks you can build with UNISTRUT metal framing. Includes full description of 46 different kinds of UNISTRUT racks, drawings and complete ordering information.

UNISTRUT PRODUCTS COMPANY
1013 W. Washington Blvd., Chicago 7, Ill., Dept. A11

Please send the items checked below, without obligation

☐ Rack Catalog No. 600 ☐ UNISTRUT Sample

Name _____
Company _____
Address _____
City _____ Zone _____ State _____

Electronic Controls . . .

(Continued from page 70)

faced with (and still are), a better understanding of what is required in a conveyor is necessary. As conveyors became longer and more heavily loaded, more than one drive was needed to keep the chain pulls from becoming excessive.

To make a number of drives on a closed-loop function to pull a conveyor, each drive must be able to pull its share of the load and at times help the drive in back of it if the first drive becomes overloaded. These

drives must maintain a speed very close to synchronous. If the speed of the conveyor can be constant, this can be accomplished in a very simple way by using a small induction motor driving a variable speed transmission which in turn drives a gear reducer which drives the head sprocket of the conveyor. It is all mounted on a frame which floats on anti-friction wheels in a fixed frame and is spring loaded against the thrust of the drive on the floating frame when it is pulling.

To the fixed frame is attached a rack and on the speed changing screw

(of the variable speed transmission) is attached a pinion engaged with the rack. As the drive moves forward or back, the pinion changes the speed of the drive.

Several drives of this nature can be installed on a conveyor. Assume that in the morning the conveyor is empty and the loads are put on the first floor. The first drive unit is on the second floor. As this drive picks up more and more loads, it settles back against its springs farther and farther, the pinion moving on the rack turns the adjusting screw of the variable speed transmission and slows the speed of this drive a small percentage.

As it slows down, the drive ahead (say on the third floor) gets more and more pull since it is trying to run at a faster speed than the drive on the second floor, which by this time is pulling back on the chain a little because it is running slower. As the drive gets this pull on the third floor, it settles back and also slows down a little until all the drives find a common pulling point and a speed point, and each is doing its full share of the work.

This is called balancing, and has been in successful operation for 30 years. In order to do this we have tied up the speed changing screw of the variable transmission by the rack and pinion, and this screw cannot be used to vary the speed of the conveyor remotely by means of a servo motor. If it necessary to change the speed of the conveyor, this simple type of balancing requires a mechanical change or re-adjustment at each drive each time the overall speed is changed. Consequently, it requires too much maintenance help and is cumbersome.

We tried an epicycle gear box (which is primarily the principle of the planetary transmission) and we attached a servo motor at the speed changing screw which, with this device, could be used independently of the balancing feature. We tried to connect all of the servo motors together and tried to change the speed of the conveyors up and down from one point but found that no two servo motors operated exactly alike, and before long we had the complete system out of balance.

Electronic Controls Being Used Today

We now use a standard in-line po-



DESIGNED FOR Your USE

LANSING

2 WHEEL HAND TRUCKS IN OVER 50 MODELS AND STYLES FOR EVERY NEED!

WAREHOUSE TRUCKS

The Lansing Western Eagle Warehouse Truck illustrated is typical of the sturdy, practical design inherent in Lansing Company hand trucks. Warehouse trucks are available in many models in both Western and New York patterns.



BAG TRUCKS

Time-tested construction plus modern designing make Lansing hand trucks a safe, economical investment. The Minneapolis Bag Truck illustrated is one of a complete line of bag trucks that fill every handling requirement.



UTILITY TRUCKS

For all-round parcel, package and keg handling, sturdy, light-weight Lansing Utility Trucks are unsurpassed. Economy has been retained without losing convenience and ruggedness.



SPECIAL PURPOSE TRUCKS

Many products or materials require a special design for efficient handling. If you have this problem, there is a good chance a stock model Lansing Special Purpose Truck will solve it. The Lanco Chisel illustrated is widely used for castings and machinery parts.



BARREL TRUCKS

The Lansing Western Pattern Barrel Truck illustrated is ideal for barrels and yet suitable for boxes and general merchandise. All Lansing trucks are available in a choice of wheel types to suit your needs.



SEE YOUR MATERIALS HANDLING DISTRIBUTOR OR WRITE FOR CATALOG



LANSING CO.
LANCO MATERIAL HANDLING EQUIPMENT

LANSING, MICHIGAN







Since 1881

Circle No. 51 on Reader Service Card for more information

Electronic Controls . . .

WHAT GOES ON INSIDE THE CONTROLS?

tentiometer in place of the rack and pinion. One drive is made a master, the others, follower drives. A tachometer generator is mounted as a package on the variable speed shaft of the variable speed transmission on all drives. The signals from the tachometer generator, representing instantaneous speed recognition, and the signals from the position potentiometer are amplified. The signal of all followers is compared to the amplified tachometer and potentiometer signals of the master through the magnetic amplifier, which may be visualized as a valve for the flow of forward or reverse current to be sent to the servo motor.

The servo motor then is energized to speed up or slow down the conveyor through the adjusting screw on the variable speed transmission. The potentiometer indicates the accumulated error in position, the tachometer generator the instantaneous speed error. As adjustment is made for accumulated error, there normally would be a definite tendency to hunt.

When the signal to the magnet amplifier starts the split series field servo motor and it revs up to change the speed, the correct speed is reached and the servo motor wants to keep on turning. The tachometer generator signal, being instantaneous, stops the servo motor and keeps hunting to a minimum.

If we wish to synchronize two or more drives, in place of the potentiometer unit we use instrument synchros, a transmitter on the master drive and a control transformer for each follower. The circuits are much the same as are used with the tachometer generator signal and for the same reason—to dampen hunting. The use of synchros is simple since these units are not necessarily put on the drive, but on small caterpillar units contacting the chain near the transfer points. By placing the signal device near the transfer points, the exact number of pitches passing these points can be controlled.

In using these synchros for synchronization, a Sigma relay can be used to close down the system if the



Standard monorail trolleys, loaded with 500-lb. aircraft landing gear assemblies, get a boost . . . at Menasco Mfg. Co., Burbank, Calif.

BUSCHMAN "PUSHER" CONVEYOR

gives aircraft parts a lift . . .

Production got a big lift when a Buschman Cable Conveyor went to work with a gravity-run monorail system in this aircraft sub-assembly plant.

The Buschman Universal Cable Conveyor trolley, with extended pusher bar, automatically "picks up" the ½-ton load and boosts it to the higher track level in the next building. The offset side-pushing effort of the Buschman cable trolley is balanced by side guide rollers on the load bar. No special arms needed on the monorail trolleys, which, when emptied, are placed on cable conveyor and quickly returned to starting point of the system.

You may find "Universal Cable" the low-cost solution to your handling problem. Check these advantages. It's compact, flexible and most economical in operation. Stock units are quickly obtained, easily installed, changed overnight when desired.



SEND US a sketch and details of your requirements, with weights and sizes of loads to be handled.

THE E. W. BUSCHMAN CO.

4429 CLIFTON AVE.

CINCINNATI 32, OHIO

Representatives in Principal Cities

Circle No. 52 on Reader Service Card for more information

HELP PUT BOUNCE IN RUBBER PRODUCTS

There are a number of dispatching systems in rubber plants which dis-

These electro-mechanical systems are unique in that the operations such as opening switches are accomplished by means of setting signals on shoes

on a cross head by a selector on the carrier. The selector sets up a circuit between two of a series of shoes. The transformer, which is in the circuit of the track switch solenoid valve, is shorted in the secondary. As the carrier approaches and the shoes contact overhead wipers of flat wire, a circuit is made to permit current to flow through the shorted transformer and start the operation. This permits the use of low voltage and practically no opportunity of sparking.

Another large installation incorporating the principle of automatic pin setting is used to operate a selective warehouse and shipping point for refrigerators and home freezers. We have studied this same selective problem further and we feel that the next time we want to approach it we will attempt to do so by means of magnetic signals on a device similar to a tape recorder. We feel that we could simplify and even cut the cost of the electro-mechanical setup with a good electronic control installation.

Some Typical Installations

The first time we really designed completely with electronic synchronization and drive balancing on a large installation was in 1949 in a body plant in Detroit. This system was a continuous series of conveyors of variable speed and spacing through various processes requiring transferring from conveyor to conveyor with a guarantee of no gaps. Some of the conveyors were short—some so long and heavily loaded that they required as many as three 3000-pound drives to pull them. Roughly, this system was comprised of two floor type conveyors hauling trucks on which the metal finishing of the body was completed.

At the points of completion, large frames carried on overhead conveyors were allowed to come down over the bodies by means of simple single action clamps, front and rear, which were tightened by an operator. The bodies were fastened to those frames, and the overhead conveyors inclined and lifted the bodies clear of the trucks and carried them to the bonderizing and paint systems. The overhead conveyors had to be well synchronized with the floor conveyors so that the frames did not touch or in-

BE PREPARED

To increase production
To lower costs

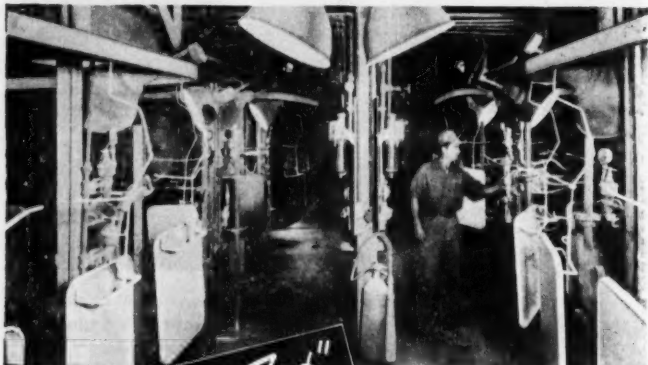


Photo courtesy Hamilton Mfg. Corp.

with R-W

"Zig-Zag" Cont

Continuous Power Conveyor

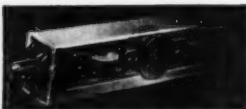
Are you prepared to get the maximum efficiency possible from your production line? Or are you face to face with a profit-eating handling bottleneck? Well, here's the answer to your problem — Richards-Wilcox ZIG-ZAG Continuous Power Conveyor.

ZIG-ZAG Continuous Power Conveyors are a patented and exclusive engineering achievement of Richards-Wilcox. You'll find them constantly at work in every type of industry—boosting production, lowering costs, solving man-power problems and raising production line efficiency.

ZIG-ZAG Conveyor Systems are remarkable for their versatility and adaptability. Their unique construction features make them quickly, easily and safely convertible to handling materials in almost any industry. Each unit is engineered to fit perfectly into existing layout and conditions.

Tremendous savings in manpower costs and time pay for the installation often in less than a year's time. See how you can bring bigger profits, maximum efficiency to your production line. Check up on R-W ZIG-ZAG Continuous Power Conveyors with your nearest dealer today.

For complete details, or a prompt engineering consultation without any obligation, write our nearest office today.



**Engineered for
Economy and Flexibility**

- Horizontal and vertical units alternate in a continuous chain traveling through special steel tubing.
- Complete flexibility for installation in any plant. Easily installed, easily changeable to conform to plant alterations.
- SAFE—all moving parts are fully enclosed.
- Low first costs. Low Power Factor.
- Standard horizontal or vertical curves—two-foot radius.

Richards-Wilcox Mfg. Co.

"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A. Branches in all principal cities

DOOR HANGERS & TRUCKS • FIRE DOORS & FIXTURES • GARAGE DOORS & EQUIPMENT
INDUSTRIAL • INVENTORS & PATENTS • SCHOOLS, WAREHOUSES & PARTITIONS

1080



1952

Reg. U. S. Pat. Off.
OVER 72 YEARS

Circle No. 53 on Reader Service Card for more information

Electronic Controls . . .

NO ERRORS ALLOWED IN PROCESSING OPERATIONS

jure the bodies as they were dropping down over them.

At the end of the bonderizing system, the carrier holding the body was pushed onto a track and picked up by the prime paint conveyor. All this was accomplished automatically. Here, we dared not miss a space because the frames were 14 feet long on 16-inch centers and we could not get two carriers too close because of damage to the bodies. We had to work to a tolerance of plus or minus 2 inches on transfers. This same operation followed through sealer paint, sealer paint dry-off, finish paint and finish paint dry-off, repair and two-tone until the body, completely painted, was deposited automatically on trucks on another floor conveyor, the trim line.

This system works and comprises 43 different conveyors, some at different speeds and spaces. The whole system is synchronized and producing one body per minute or 60 an hour through two shifts a day. On the balanced multiple drives, the potentiometer and tachometer generator circuits were used. For the synchronizing units, synchros and the tachometer generator were used at transfer points. The overall speed of this system is changed at will from one point, with a variation of 4 to 40 feet per minute.

Another job for a large appliance manufacturer is a conveyor about 1½ miles long through five ovens (bonderize and paint) which requires seven drives to operate it. We have designed it to permit the heat of the oven, as it increases or decreases, to increase or decrease the speed of the conveyor automatically to allow for a constant and controlled paint bake condition.

How a System Is Planned








A system now in the planning stage is one for a large motor car company in Detroit. Briefly, the specifications are:

A Control Device designed for placement in a production control office with a master drive consisting of (1) a synchronous motor of suf-

truck-man's saving us money

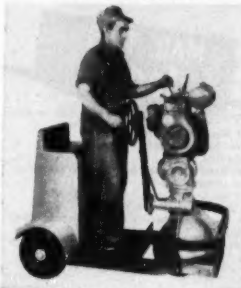


...and I've been promoted!"

"The boss says he wished someone had put him wise to Truck-Man years ago and I can see why. I used to be one of 5 men  man-handling freight  or straining with hand trucks.  Now the other 4  are on production and my Truck-Man and I do it alone—faster, too.  I call my Truck-Man "Muscle-Mouse" because we really get around—through narrow aisles  and around sharp corners." 



Model DF Pallet Toter



Model DR Truc-Tor

You, too, will wonder how you got along without Truck-Man once you've tried it. Low first cost, low operating cost, and low maintenance cost, mean you can't afford to be without it. The operator rides on all models • The rugged air-cooled engine has ample power for steep inclines and heavy loads, yet burns only a gallon of gas on most 8 hour shifts. • 360° steering • Highest pay-load to truck weight ratio • Simplicity of design—less chance of trouble • Hydraulic lift.

Four versatile models to choose from—Model D 3500 lb. Skid Lift, Model DF 3000 lb. Pallet Toter, Model DT 2000 lb. Platform Utility and the new Truc-Tor Model DR Truck-Man Tractor for towing those heavy cargo trains—up to 6500 lbs. on dry level concrete. For complete information ask for the new catalogue covering all four models and featuring several custom built, special purpose trucks.

truck-man

Div. of The KNICKERBOCKER CO.

582 Liberty St. • Jackson, Mich.

Send me the New Catalog describing four Truck-Man Models

Name

Title

Address

City Zone State

Circle No. 54 on Reader Service Card for more information

Electronic Controls . . .

MORE TO CONTROLS THAN MEETS THE EYE

ficient size to drive (2) an infinitely variable micrometer adjustment controlled variable speed transmission which will hold exact speeds for long periods, which in turn will drive (3) a tachometer generator and through (4) a small gear reducer, plus (5) one of a series of synchro transmit-

ters. If more than one synchro transmitter is used, electric clutches will be used to disconnect any of the series of conveyors from the control so that they can be run independently of the so-called master drive.

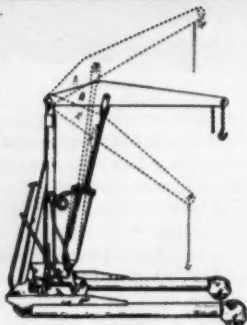
A Control which can be added to any independent conveyor, of any type which is driven by a standard induction motor and a standard variable speed transmission which has an adjusting screw to effect speed changes. This control consists of (1) a tachometer generator driven by the

variable speed shaft of the variable speed transmission, (2) a servo motor mounted on the speed changing screw of the transmission, (3) a synchro control transformer arranged in the form of a caterpillar drive to count the lengths of chain passing a given point and driving the synchro so as to indicate accurately the travel of the conveyor and (4) an electronic follower control panel which will induce the follower drive to change speed and follow the pre-set master for exact travel.

Two Indicating Boards, one for installation in the production office and one in the maintenance control office, which will indicate by (1) lights of various colors on a map of the conveyor or conveyor system covered by the control system when the conveyor running is tied into control, when the conveyor running is not tied into control and when the conveyor is stopped by push button at some definite control point; (2) counters which operate only when conveyor is operating in the control circuit which will show the number of unit spaces passing the unload point to indicate units delivered; (3) counters to indicate stops for each push button control station; (4) indicating clock that shows for a production period the exact running time in seconds and tenths for each conveyor in the circuit of each system; (5) tachometer to register in jobs per hour for master control; (6) lights at or near each drive to indicate that conveyor is shut down by push button station, by overload circuit, by power failure or other cause; (7) a systematic method of exact production control using tape recording counters and clocks to give complete production report and (8) phone jacks installed in panels for use of communication between production offices and maintenance offices at each control point.

The theory behind this rather elaborate control setup is that we will be able to run conveyors or a conveyor system at an exact pre-determined speed, by synchronous motor, which can be changed at will. This will give such a precise and accurate record that it will no longer be necessary to clock the speed of the conveyors, and will also assure management and sales that they will get full production as planned.

GIVE MAINTENANCE A LIFT WITH **RUGER** and do it for less . . . !



The Ruger Hydraulic Floor Crane, in capacities from $\frac{1}{2}$ ton to 3 tons, is the answer to the maintenance man's prayer. These portable hand-powered Ruger Hydraulic Cranes move easily to any materials handling and maintenance job that must be done with an overhead hook.

With its pinpoint boom control and its roller bearing wheel mount, it is well suited to transport maintenance material, move machinery, handle motor or transformer placement, steam fitting and general plant repair work.

The Ruger Hydraulic Crane can also be used for lifting, carrying or positioning heavy, odd-shaped loads such as castings, large assemblies, etc.

The Ruger Hydraulic Floor Crane makes easy work of bulky loads — awkward loads — fragile loads — loads difficult to handle with other types of crane or truck equipment. And you will like its easy maneuverability in restricted areas.

Ruger also manufactures hydraulic cranes for truck mountings in $\frac{1}{2}$, 1 and 2 ton capacities.

MAIL THIS
today

Ruger Equipment, Inc.
401 W. Fourth Street
Uhrichsville, Ohio

Please send complete information and illustrated catalog about

Floor Cranes Truck Cranes
(Check one or both)

I am interested particularly in size or sizes checked.

$\frac{1}{2}$ -Ton 1-Ton 2-Ton 3-Ton

Name

Company

Street

City and State

RUGER Equipment Inc.

WEST FOURTH ST. • UHRICHSVILLE, OHIO

ORIGINATORS AND PIONEERS IN THE DEVELOPMENT
OF HYDRAULIC FLOOR AND TRUCK CRANES

Circle No. 55 on Reader Service Card for more information

Electronic Controls . . .

WHAT'S THE REASON FOR ALL THIS WORK?

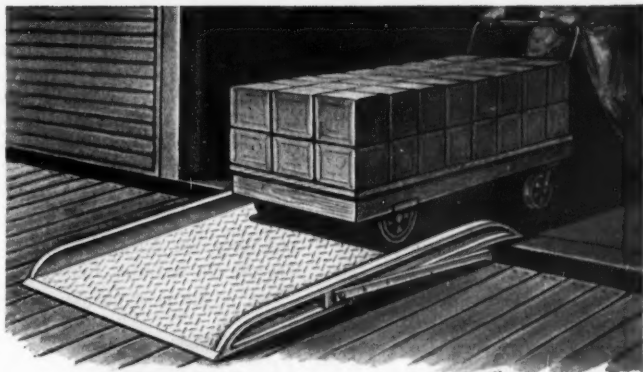
The number of electronically-controlled handling systems is rapidly increasing. Automation, which is growing by leaps and bounds in most of our larger plants, is a fertile field for electronics. We, as designers and manufacturers, worked ourselves into electronics in the course of normal developments to meet new production conditions as they are today.

A point to bring up in conclusion is this: the real reason we have followed the A.C. motor control idea and are not through developing it is that on a conveyor or series of conveyors with induction motor and variable speed transmission, even if the electronic control circuit goes out or components fail, the system as a whole or conveyors individually can be made to run with occasional manual adjustments until repairs or replacements can be made. If a motor or a variable transmission goes out, usually there are plenty in maintenance stock to continue operations. No special equipment is required.

We are determined that production go on at all costs. Too often we have designed special machinery or controls which required standby units or caused a shut-down if even one small part was out. We should continue to keep our electronic developments safe and simple for industry to use.

* Stephen W. Jessop is chief estimator for the Jervis B. Webb Company, Detroit. FLOW extends sincere thanks to Mr. Jessop for his fine work in preparing this article, which was featured in a recent issue of Toledo Technical Topics.

**What's the Man
on page 52
Doing Wrong?**



NOW!
available in **34** standard
models

MagLiner MAGNESIUM DOCK BOARDS for truck docks

Yes, you can now buy Magliner magnesium dock boards in 34 standard sizes. Engineered specifically for truck dock use, these low-cost units are pre-fabricated in a wide range of standard sizes to meet the requirements of nearly all medium-duty truck loading operations. Models available range from 36" to 60" wide, 30" to 60" long, and in load capacity ratings of 1,000 lbs. and 2,000 lbs. (per axle).

Unequalled for lightness and easy one man handling, Magliner dock boards are engineered for bridge-design strength and provide assured safety to men, equipment and load. Equip your docks to handle more trucks, more shipments, more total payload! Make loading operations smoother . . . faster . . . safer—with Magliner standard dock boards! There's a stock size for your exact requirements. Write for complete information, ask for bulletin DB-203.

LIGHT! —Less than 1/3 the weight of steel equipment—
Easy one-man handling

STRONG! —Capacity rated to 2,000 lbs. (axle load)

- ADJUSTABLE TO VARYING HEIGHTS AND SPANS
- TRUCKS CAN BACK TO WITHIN 3" OF DOCK
- REVERSIBLE—IF TRUCK BED IS LOWER THAN DOCK LEVEL, SIMPLY REVERSE BOARD

Exclusive
AUTOMATIC DROP LOCK
(pat. app. for)

- Positive Action Lock
- Prevents Dangerous Slippage
- Quickly . . . Easily Adjustable



Custom Engineered Dock Boards Available—Write for Information
MAGLINE, INC. P. O. BOX 346 PINCONNING, MICH.

Conveyors That Go Around Corners . . .

(Continued from page 66)

Spiraling Conveyors—Spiral Chutes

Very often it is necessary to arrange conveyors in a compact vertical space. This is usually accomplished with spiraling conveyors (often to move goods from the ceiling

and the floor) which lead into spiral chutes (with or without roller carrying surfaces) for transportation to lower floors. Such an arrangement has worked out very satisfactorily for many firms—many different times of loads, especially cartons, and regularly shaped items, are most suitable to such a carrier.

Flat Plate Floor Conveyors—They'll Go Around Bends

One of the most interesting con-

veyors of recent months is a flat plate floor conveyor, used by the BOP Plant, General Motors Corp., South Gate, California, to deliver automobiles to final paint, trim, repair, etc. As with so many other firms, this plant did not have sufficient space to lay out a complete straight-line flow. Accordingly, a series of lines parallel to one another was the answer. At the ends of the lines, the floor conveyor was engineered to make the necessary 180° turns. One of the photos with this report shows this in detail.

Another example of gravity conveyors which travel around posts is offered by the Cosmetics Laboratories, Inc., Detroit. The lines, which serve order storage bins, snake around building obstructions, eliminating wasted areas. Gravity roller conveyors form the straight-line sections, gravity wheel conveyors form the curving sections.

The Empire Market, Albany, New York, incorporates several curve sections that flow goods around support post and back to warehouse stocks. This example is also pictured.

Using Conveyors For Floating Storage

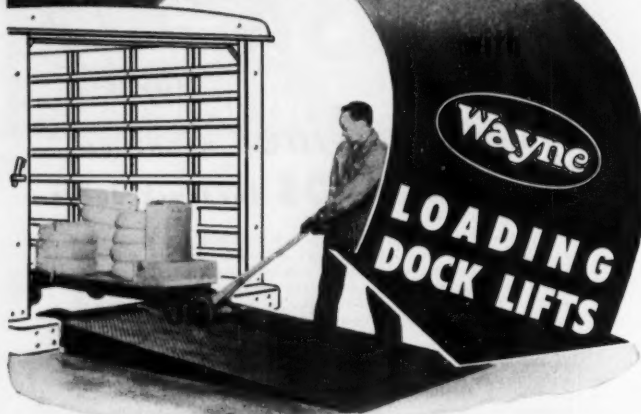
Can you use conveyors for floating storage in your plant? Many plants use various types of conveyors, very often overhead trolley conveyors, to do this job. The conveyors are arranged to snake back and forth so that tremendous numbers of units, hanging from individual trolleys, can be traveling in a relatively small area. Actually, the conveyor travels from one department to another but is timed at a very slow speed so a moving bank of material is always on hand.

Probably one of the most flexible types of conveyors is the overhead trolley type. These can be arranged in almost any type of layout to meet almost any requirement. A single system often travels horizontally, rises and descends on an inclined plane, rises sharply vertically, then travels horizontally making 90° turns to the right and left.

Flexible Wire Belt—An Innovation In Flexibility

An unusual conveyor, which is extremely flexible, is similar to a belt conveyor except that its carrying sur-

CUT HANDLING COSTS... SPEED LOADING



TILT TO MEET LOAD... CUT LOADING TIME IN HALF

Unloading raw materials . . . loading finished products just back up truck and loading dock lift is adjusted to correct height . . . industrial trucks to roll on and off easily. No chain lifts, pry bars or costly manual labor necessary. Wayne Dock Lifts do it all . . . with valve or push button control of quick acting hydraulic system. Adjusts to any height.

From loading docks to production line, there's a Wayne Industrial Lift to save time, labor and money. Wayne Lifts include ramps, sidewalk elevators, material lifts, cross over bridges, service lifts and others. Every one custom engineered to the needs of your plant. Designed and built to help you safely move materials faster and at lower costs. Write for Wayne Industrial Lift booklet.

THE WAYNE PUMP COMPANY
SALISBURY, MARYLAND • TORONTO, CANADA



Wayne Material Lift



Wayne Cross-Over Bridge



WAYNE LIFT DIVISION, Ironton, Ohio

Circle No. 57 on Reader Service Card for more information

face is made up of steel wire on $\frac{1}{2}$ " centers. As you will see in the photos, the belt is able to travel in almost any plane to suit specific requirements. Although introduced in the baking field (because of its sanitary features), the unit is highly adaptable to other industries which require flexibility and/or the open type belting surface.

Thus, careful planning of conveyor layout can take advantage of seemingly wasted area within a building. In this day of crowded operating conditions, it may mean a big savings in money. So look around and see if you can't arrange your conveyors to take advantage of unused space.

FLOW wishes to thank the following firms for their help in connection with this report: Anchor Steel & Conveyor Co.; E. W. Buschman Co.; Lamson Corp.; Power-Curve Conveyor Co.; Rapids-Standard Co., Inc.; Union Steel Products Co.

Association and Society News . . .

(Continued from page 28)

- The first dinner meeting of the 1952-53 season for the New York Chapter, American Material Handling Society featured a talk by Allen K. Strong of the American Cyanamid Co. His subject was "Major Economics of Unit Loads".

- At its twentieth annual meeting, the Packaging Machinery Manufacturer's Institute elected officers for the coming year. Edwin H. Schmitz, general sales manager of Standard-Knapp, division of Emhart Mfg. Co., is the new president. Other officers include: S. Chester Markley, president, Comas Machine Co.—first vice president; Mrs. Helen Horix Fairbanks, president, Horix Mfg. Co.—second vice president. Four new directors were elected as follows: Robert T. Foreman, R. A. Jones & Co.; Tom Miller, Package Machinery Co.; E. A. Oliver, Economic Machinery Co.; and John B. Wilson, Wright Machinery Co.

How you SAVE ON HOIST MAINTENANCE WITH COFFING

...Quik-Lifts

Here are just a few of the "extras" that keep Coffing Quik-Lift electric hoists on the job, save maintenance:

- Gears are drop-forged alloy steel, hard-faced for extra wear, soft-cored for added strength. Teeth are larger, stronger.
- Moving parts run on lubri-sealed ball bearings.
- Pendant rope controls are used for more dependable and trouble-free service over the years.
- Load-holding parts are tested at 100 percent overload.

Quik-Lift electric hoists available in 17 models, 500- to 4,000-lb. capacities.

...Challengers

Coffing Challenger spur-gear hoists are completely new throughout...with new lightness, new strength, new design simplicity:

- Housing is formed steel plate—withstands shock loads and rough handling.
- Laminated steel back plate gives extra support to hoist mechanism.
- Has five-to-one safety factor, tested at 100 percent overload.
- Gears and bearings have lifetime lubrication.
- The Challenger has only 29 basic parts—simplest spur-gear hoist ever made.
- May be completely disassembled in minutes with ordinary tools.

Challengers and other Coffing spur-gear hoists in capacities from $\frac{1}{2}$ to 5 ton.

Test these points yourself. Pick out the toughest hoist job you have, install the right Coffing electric or spur-gear hoist—then see how little maintenance is required, how they stay on the job. For further information on Quik-Lifts and Challengers, write Dept. FL 11.

COFFING HOIST COMPANY Danville, Illinois

HOIST-ALLS • SAFETY-PULL RATCHET LEVER HOISTS • MIGHTY-MIDGET PULLERS
DIFFERENTIAL CHAIN-HOISTS • LOAD BINDERS • I-BEAM TROLLEYS

Sold By Distributors Everywhere

Circle No. 101 on Reader Service Card for more information

Protection

from shipper to shopper...

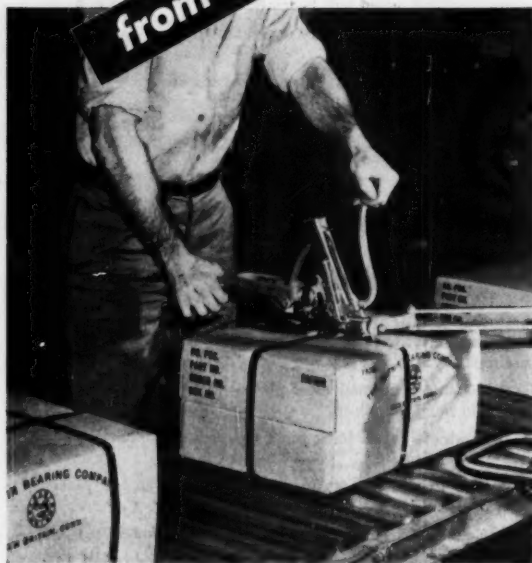
with

STANLEY STEEL STRAPPING

For everything from bath towels to baseball bats . . . from one end of the country to the other . . . hundreds of prominent manufacturers look to the Stanley Steel Strapping System for the safe, economical protection of products in transit.

With Stanley Steel Strapping, your products are better protected against rough treatment, damage or pilferage en route. Your bales, boxes, cases and cartons are neater . . . tighter. Your packaging and shipping departments can do a better job. You reduce man-hours . . . lower costs. You save time, money, and materials in the shipment of almost any product, when you combine the Stanley Steel Strapping System with other modern shipping methods. The complete System includes strapping, seals, tools, reels and accessories — *everything* for your application! Why not try it? Mail the coupon today.

BRANCH OFFICES OR REPRESENTATIVES
IN 32 PRINCIPAL CITIES



STEEL STRAPPING AND CAR BANDING SYSTEMS



Reg. U. S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS • STEEL STRAPPING • STEEL



Invite the Stanley Man to Call

The Stanley Works, Steel Strapping Division
322 Lake Street, New Britain, Connecticut

Please ask your representative to call and explain the advantages of the Stanley Steel Strapping System to me.

Name _____

Firm Name _____

Street _____

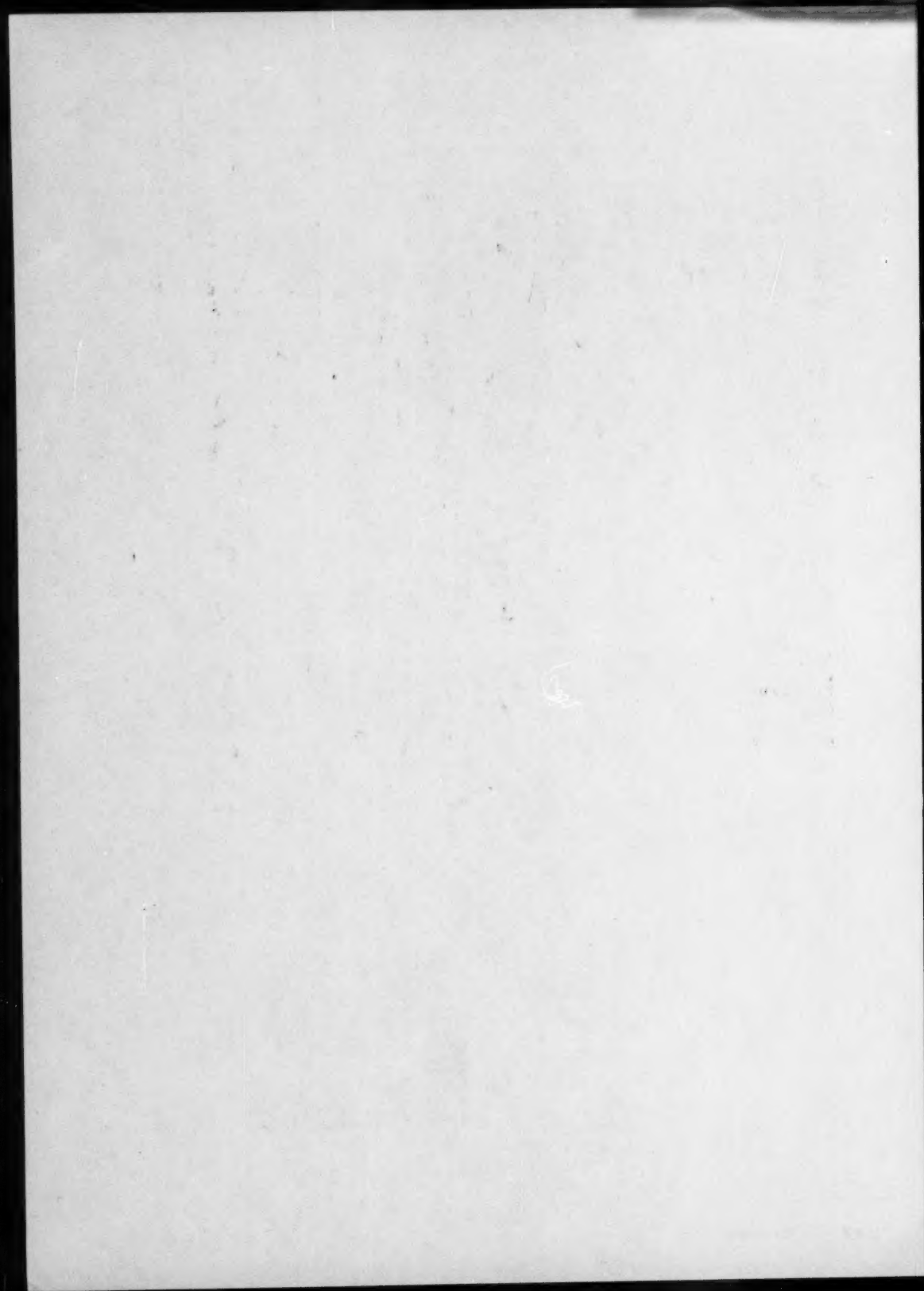
City _____ State _____

Circle No. 71 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

PACKAGING and SHIPPING SECTION

**Packaging
IS
Material
Handling**



PACKAGING and SHIPPING SECTION

Adhesives for Sealing
Containers 104

How General Electric Solved
Two Tough Packaging
and Shipping Problems 107

Shipping Fragile
Components 108

Loading and Unloading
Heavy Machinery 110

What's New in Packaging and Shipping Equipment?

Pre-Cut Strapping

—A. J. Gerrard & Co.

To meet the need for metal strapping in service industries and for field applications, these small



coils of strap are cut to customer's specifications. Large coil shown is 4 inches in diameter and contains 30 feet of $\frac{3}{4} \times .021$ strap. Smallest coil contains 2 feet of strap and is approximately $1\frac{1}{4}$ inches in di-

ameter. Coils of any width or thickness in stainless, monel, etc., can be furnished in lengths up to 36 feet. Also, this company will coil customer's strap if it is sent to the factory.

Circle No. 210 on Reader Service Card for more information

Automatic Nailing Machine

—The Auto-Nailer Co.

Here's an automatic nailing machine that cuts and drives its own nails in one motion. It is said to

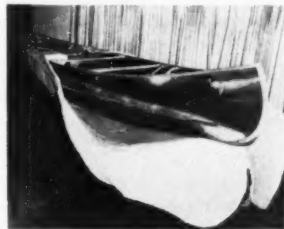
drive nails as fast as a treadle can be depressed, or will drive three a second when the treadle is held down. Nail length is controlled by a dial selector, and nails are also countersunk and clinched. Each nail is driven under a pressure of 1000 pounds.

Circle No. 211 on Reader Service Card for more information

Versatile Packaging Material

—Wood Conversion Co.

Tufflex Cargo-Pak is the name of this cellulose fiber felt packaging material which can be fabricated

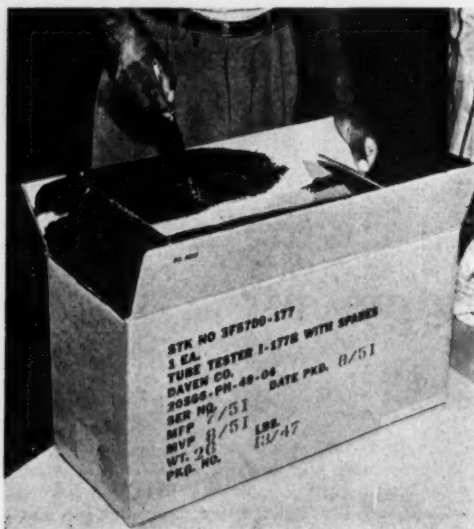


to any size for a safe, one-piece protective wrap. It is said to provide the answer to pressure point, surface protection, thermal, and flotation packaging problems. It can be furnished as either moisture resistant or absorbent packaging, depending on the desired specifications. It is flexible and soft, molds itself to irregular contours, and provides a light-

(TURN TO PAGE 116)

Basically, there are four types of materials available for the closure of corrugated containers—strapping, staples, tapes and adhesives. Strapping methods were discussed in November, 1951, and staples and tapes in April, 1952. (reprints of these articles are available on request). To round out its coverage of this very important phase of packaging and shipping, FLOW now presents this survey on the various types of adhesives available, and the methods for use.

Adhesives for *how and when*



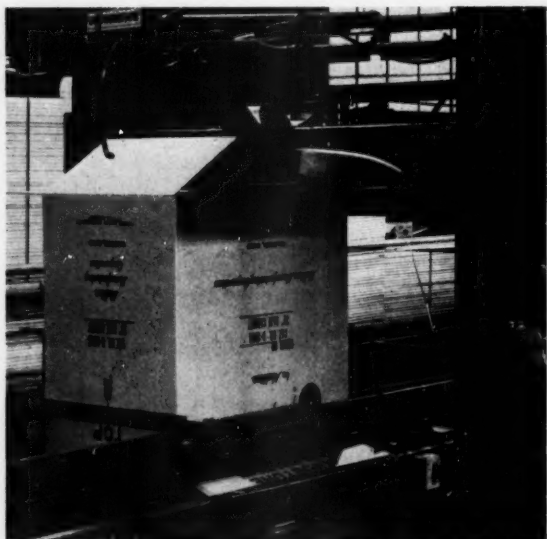
HAND SEALING requires a flat paint brush wide enough to enable quick application with only one or two strokes. After application of glue, allow specified time for setting, then press flaps together. With the weight of another filled container, apply pressure for the required length of time to insure permanent bond.



MACHINE SEALING permits super speeds in closure operations. This machine is installed at the end of a production line conveyor. As products are completed, they go directly into containers which flow into sealing machine without interruption. Both tops and bottoms are glued at the same time. Maximum capacity of the machine is 240 cartons per hr.

The primary requirement of any shipping container is the protection of its contents from physical damage. The careful manufacturer will first look over the field of containers and select the right one for his particular products. He will select one which is strong enough to maintain the weight of the products he ships, but still light enough to keep shipping costs down. He will choose a container which is waterproof if the product is of a type which requires it. If necessary, he will select cushioning material and dividers to be used inside containers to prevent damage from shock.

Then, the final step, one as important as any other in the packaging and shipping procedure, is the selection and proper use of a closure material. The importance of this step cannot be over-emphasized. A well designed, properly selected container can be rendered worthless if it has been closed in a slipshod manner, or even if it is carefully closed but with the wrong material.



Sealing Containers

to use them

Selecting Adhesives

There can be no cut-and-dried rules for selection of adhesive for closure purposes. A wide range of factors must be considered; each industry, each product, each shipping room will be confronted with a different set of limiting factors. Consultation with reputable manufacturers of adhesives is an important adjunct to the planning of this phase of packaging and shipping.

Before calling in a manufacturer's representative, it would be well to be armed with an outline of your operations. Information contained in the outline would be somewhat the same as shown in the outline accompanying this article.

Certain physical characteristics make it possible to distinguish container stocks and thereby determine the proper glues for sealing them. Though at times it is difficult to establish their nature without the aid of laboratory tests. Of course, most container manufacturers de-

REMEMBER THESE

TIPS IF YOU USE

ADHESIVES FOR CLOSURE



1. If you use sealing adhesives containing water, avoid freezing during winter months. Cold glues have an apparent heavier body than warm glues and lead to some confusion when diluting them to running consistency. Always bring them to normal room temperatures before adding water.

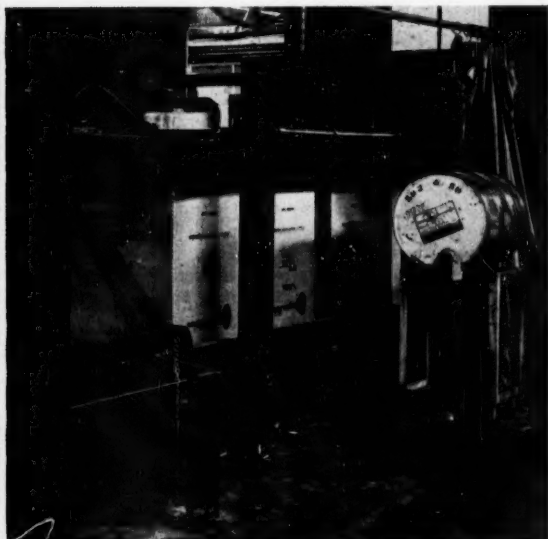
2. If you use rubber-resin base or solvent type adhesives, be sure that all surfaces are clean. In some types, you apply cement to both surfaces to be sealed, allow to stand until tacky, then bring surfaces together under pressure. Other types are employed in the same manner as vegetable (water containing) glues.

3. When using a sodium silicate adhesive, apply a thin film to one side of a set of flaps only. Bring flaps together immediately following application and hold in close contact until the glue has had time to take hold.

4. For maximum sealing speed and coverage, apply a thin glue film to container flaps. Apply adhesive to the entire outer surface of the inner flaps of regular slotted cartons.

5. Before testing a new type of adhesive, or when changing from one grade to another, be sure to cleanse glue pots, brushes, mixing pails, etc. thoroughly. If possible, use new brushes with the new adhesive.

6. Advise your supplier when a change is to be made in the type of case stock, source of container supply, or in the timing or method of sealing.



scribe in their invoices contracts, etc, the type of stock they are supplying. Therefore, the first check should be of records of containers which have been received.

If no information of that sort is available, then it will be necessary to check the containers themselves. It is necessary in such an inspection, to check both the inside and outside liners of containers, as the two surfaces are brought together in glue sealing operations and often are entirely different in nature. Weatherproof containers (commonly known as V-boxes) and special containers that are paraffined, greaseproofed, asphaltum-burlap lined, colored or otherwise treated should be submitted to the adhesives supplier for gluing tests before being

placed in regular production. From the standpoint of sealing, container stocks may be divided into four major groups as follows:

Jute Liners

These are produced on a cylinder machine and are composed of about seven vat-lined (wet process) layers of stock which separate when the edge of the liner is roughed or "worried". Having a definite grain, this stock tears more easily in one direction than in the other. As a general rule, jute liners are easy to seal, because the stock is neither excessively porous nor highly water-resistant.

Cylinder kraft and filled kraft liners

Like jute, these liners are produced on a cylinder machine and consequently have many of the same physical characteristics. Cylinder kraft is a tougher stock than jute. Glues having special biting properties to insure proper penetration into this tougher stock are desirable. They should also be higher in solids at any given consistency to provide the necessary quick set and strong bond.

Steam and water-finish Fourdrinier kraft liners

These liners are produced on a Fourdrinier machine and therefore do not have vat formations of seven separable plies. The fibres are interlaced and consequently the tear test shows a less distinct grain direction. The outer ply has a smooth finish, usually not quite as hard and glossy as jute.

Generally, they can be sealed with the same type of glue as cylinder kraft liners. An exception however, is wherever containers made with these liners have an exceptional spring to the flaps or are to be sealed under short compression. Then grades of glue with higher solids than the average kraft glue are necessary. This is particularly true when the liners are used on lightly scored fibre containers.

Dry-finish Fourdrinier kraft liners

They are produced in the same manner as water-finish kraft and accordingly, have similar characteristics, with the exception of the finish. They are not calendered and consequently are rougher, more porous, and more translucent.

Glue required here must have the highest solid content and the fastest setting properties. In order to prevent excessive penetration, it is necessary to employ grades which by reason of a special conversion in the process of manufacture, permit their moisture content to filter quickly into the stock, depositing a tacky film of glue solids on the sealing surface. Obviously, to use glues which penetrate too deeply into porous stocks is both wasteful and inefficient.

Applying Adhesives

Obviously, the care with which any glue is applied to a shipping container has a definite bearing on the amount of handling and abuse the sealed container will

HERE'S WHAT YOU SHOULD KNOW ABOUT YOUR PACKAGING & SHIP- PING OPERATIONS BEFORE YOU CHOOSE AN ADHESIVE. . . .

1. TYPE OF BOARD FROM WHICH YOUR SHIPPING CONTAINERS ARE MADE.

- A. Kraft, Sulphate
- B. Kraft, Cylinder
- C. Kraft, Fourdrinier
 - a. water finished
 - b. dry finished
- D. Jute
- E. Fibreboard, solid, glued ply
- F. Wet strength treated
- G. Weatherproof (V-boxes)
- H. Special; paraffined, greaseproofed, asphalt-burlap, lined, overall, printed, etc.

2. SEALING METHOD USED

- A. hand brushing
 - a. Compression by stacking of boxes
 - b. Compression by semi-automatic belt conveyor
- B. Machine sealing
 - a. Adhesive applied by rollers
 - (1) Compression by long conveyor units
 - (2) Short pressure units with heaters
 - b. Adhesive applied by jet spray
 - (1) Air pressure conveyor
 - (2) Heated flaps plus pressure conveyor

3. TIME OF COMPRESSION

- A. Normal time is 60 seconds or more
- B. Short time is less than 60 seconds

4. SPECIAL CONDITIONS


- A. Army-Navy specifications
- B. Water resistant requirements
- C. Minimum fibre tear (for re-use boxes)
- D. Color, odor, pH test, or other considerations

(CONTINUED ON PAGE 114)

How General Electric Solved Two Tough Packaging & Shipping Problems

THESE WERE THE PROBLEMS . .		HERE'S WHAT WAS DONE
1	A method for packaging and shipping fragile components so the highly glazed finish would not be injured had to be found. Sizes ranged from less than one pound to hundreds of pounds.	A method using corrugated containers with corrugated dividers was devised. Containers are wire strapped to pallets. After being used, wire is removed and containers and dividers are collapsed for re-use.
2	Massive Alco-GE motors and generators were being skidded individually and loaded into box cars by fork jitneys. A method was sought which would speed up loading and unloading, utilize car space move economically, and protect units from the weather.	New method utilizes special crane and open top railroad cars. Gondola cars with steel sides and hinged covers were selected for motors, and standard flat cars for generators. Hinged housings provide protection for generators.

**FOR THE RESULTS AND THE
DETAILS, TURN THE PAGE**





ONE OF THE FIRST METHODS used by G. E. in shipping porcelain parts. Corrugated dividers separate the individual fragile components. Boxes are shown here stacked in one end of a box car. This was replaced by . . .

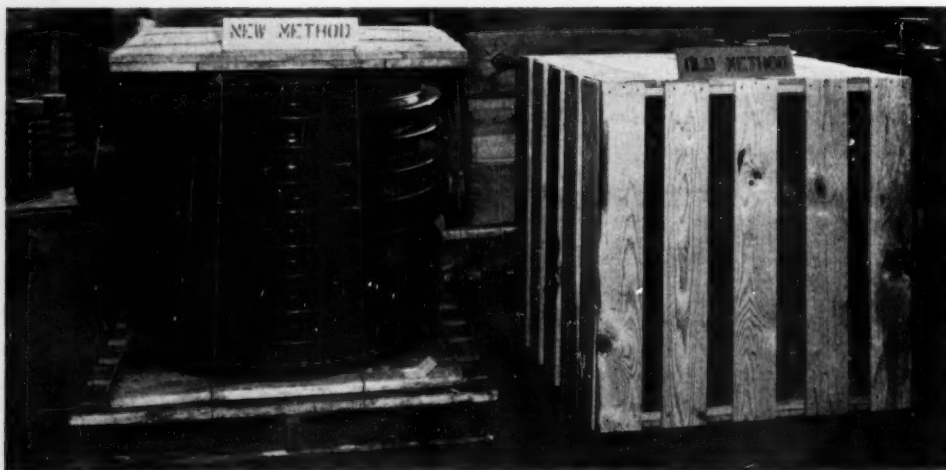


CORRUGATED CARTONS which added cushioning qualities and reduced tare weight. Wooden pallets

1

A method for packaging and shipping fragile components so the highly glazed finish would not be injured had to be found. Sizes ranged from less than one lb. to hundreds of lbs.

Shipping Fragile

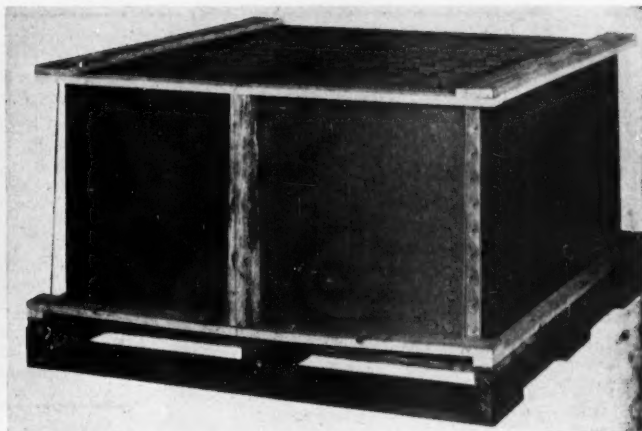


A SPECIAL CUSHIONED BASE mounted on a pallet holds the fragile unit safely. A wooden top, cushioned in the same manner as the bottom, is wired into place to hold insulator snugly in place. The old method

for packaging these components, (right), utilized a nailed wooden crate. It was more time consuming, required more materials to make, and had to be hand-lifted onto a pallet for shipping.



permitted fork truck handling. Next step was to the method now used. It involves the use of . . .



CORRUGATED STITCHED TUBES mounted on wooden pallets. Corrugated dividers fit inside to protect parts. Tubes are wire strapped to wooden pallets. For safe shipping of larger fragile units . . .

Porcelain Components



By **E. H. Ashley,**
Assistant General Foreman
Schenectady Works Service Div.

Porcelain components, widely used in the electrical industry have always provided a hard-to-solve shipping problem. Injury to their highly glazed finish can result if any but the utmost care is used. We tried several methods in our attempts to achieve completely safe shipping. The first was to pack the parts in a wooden box filled with sawdust.

Later, with the advent of the corrugated paper box, several procedures were developed, each superior to the preceding. A corrugated paper board carton (500 or 600 lb. test), which added cushioning or resilience qualities and reduced tare weight, was the first of these which was tried. Fork trucks were coming into more widespread use at the time of this change, so wooden pallets were adapted for these cartons, with risers of 2x4 dressed lumber, and with the cartons wire-fastened to the upper deck. This saved hand-lifting of the containers from the floor or rack to the pallet.

The next step (the one now in use for small insulators), was a corrugated board stitched tube that was about four ft. square and which was used with a wooden pallet of the same size made of salvaged lumber, top decks

$\frac{3}{4}$ " x 6" and the risers 2 in. by 2 in. Corrugated board, egg-crate-type, partitions fit inside. These tubes are wire-strapped to the pallets. After the insulators are removed, the wire straps are cut, the partitions and tubes collapsed, and all parts returned for further use. Some of the units have been re-used as many as eight times. This general system has been in use for several years, although constant development is with pallet design, weight reduction, etc. Before the adoption of this method, damage to scratched or chipped porcelain was relatively high, but now it has been reduced to a negligible level.

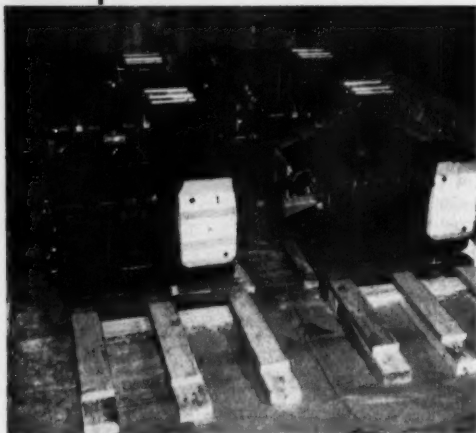
Effective as this system has been for small insulators, other procedures had to be developed for the larger units, which were as fragile but much more cumbersome. The old method included a nailed wooden crate which had to be hand lifted to a pallet. Now a pallet similar to the one shown at left in Figure 4, is used, with the insulator setting on a special cushioned base. A cushioned wooden top is held in place with wires.

2

Massive Alco-GE motors and generators were being skidded individually and loaded into box cars by fork jitneys. A method was sought which would speed up loading and unloading, utilize car space more economically, and protect units from the weather.



by William G. Becker
General Foreman
Locomotive and Car Equipment Div.



OLD METHOD of loading motors had them individually skidded and loaded into box cars by fork jitney. Average of ten to twelve motors could be loaded and blocked into each car with this method.



NEW METHOD for loading motors utilizes special gondola cars equipped with permanent protective housings. Sixteen motors can be loaded into each of the cars.

Faster Loading and Unloading of Heavy Machinery

The old method of shipping our daily production of heavy traction motors and generators was by skidding each piece individually and then loading by fork jitney into box cars. This was deemed too slow and too expensive, and was replaced with a method which utilized a special crane and open top railroad cars.

Arrangements were made with two railroads for equipping open top cars with permanent skidding and removable housings. These cars were used in shuttle service between our Erie plant and Alco plant, one for motors



HINGED COVERS are closed after gondola cars are completely loaded with heavy traction motors. They provide protection against all weather conditions.

is there a

leak

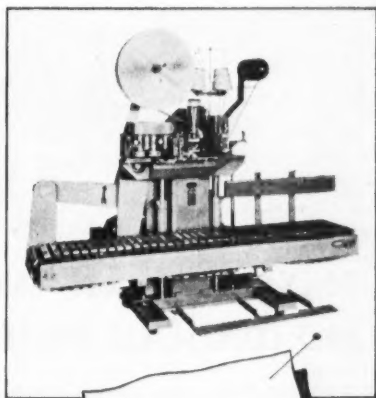
in your packaging line?

Maybe the leak is in the package—needle holes through which the contents can sift out—or maybe the leak is in the packaging operation itself, where dollars are lost through inefficiency or too-frequent break-downs.

Both leaks can be plugged with the Model DA Bagpaker®. The first is fixed once and for all by the tape-over-stitch closure—the famous “Cushion Stitch” with tape applied *on top* of the thread and needle holes. It stops sifting, resists moisture, prevents contamination and infestation!

The second problem is met by the Bagpaker® itself—solidly built for hard, continuous usage, with completely automatic sewing head and tape mechanism activated by the bag itself. Up to 12 bags per minute can be closed with this machine.

If there is a leak in your packaging line, then investigate the Model DA Bagpaker® today. Write for Brochure L-5, Bagpak Division, International Paper Company, 220 East 42nd Street, New York 17.



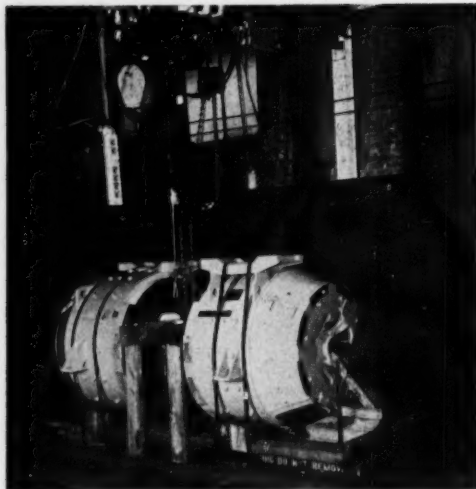
International **P**aper COMPANY

BRANCH OFFICES: Atlanta • Baltimore • Baxter Springs, Kansas • Boston
Chicago • Cleveland • Denver • Detroit • Kansas City, Kansas • Los Angeles
New Orleans • Philadelphia • Pittsburgh • St. Louis • San Francisco • St. Paul
CANADA: The Continental Paper Products Ltd., Montreal, Ottawa, Toronto

BAGPAK DIVISION

Circle No. 74 on Reader Service Card for more information.

LOADING AND UNLOADING MACHINERY



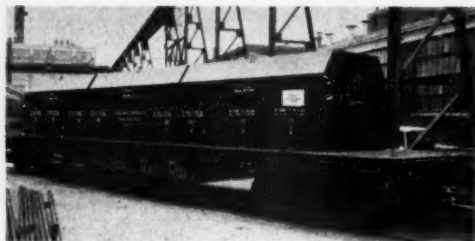
NEW METHOD for loading generators. Cars are equipped with permanent skids and protective housings. Housings are hinged with removable pins and detachable panels for ease in handling.

and the other for generators. After several trial shipments which were closely followed by all interested parties, several minor adjustments were made, and the railroads proceeded with the equipping of additional cars. Gondola cars with steel sides were selected for the motors and standard flat cars for the generators.

Cars for Motors

Each motor car is constructed with sixteen permanent wood wells bolted in place. The wells are arranged to permit each motor to be anchored by two steel bands (.035 x 1 1/4"). Covers are constructed with hinges for

(TURN TO PAGE 112)



LOADED CAR contains six generators mounted in pairs under each protective housing. When empty, entire car, with permanent skids and housings still in place is returned to railroad and then to G. E. for re-use.



ONLY FIBREEN TAKES THIS BEATING— AND COMPLETELY PROTECTS YOUR SHIPMENT!

IT'S TOUGH, STRONG: Rugged FIBREEN is reinforced with tough, closely cross-laid fibres of steel-like strength, to avoid rips, cracks, punctures.

IT'S MOISTURE PROOF: Double layers of highest quality, waterproof, pliable adhesive prevent moisture penetration.

IT'S DUST-PROOF: Both top and bottom sheets are surface-treated top-grade No. 1 kraft. **IT'S EASY-TO-HANDLE:** It's flexible and is quickly formed around contours. Saves time and labor.

IT'S LIGHT WEIGHT—makes a compact light package...reduces shipping and storage costs. **and, FIBREEN IS LOW IN COST:** Available in widths of 36", 42", 48", 54", 60", 72", 84", and 96" ... also with a new non-asphaltic adhesive.

Write for **free** samples and information,
Dept. F-11



Protects furniture



Protects textiles



Protects metal shipments

A product of **THE SISALKRAFT CO.** 205 West Wacker Drive, Chicago 6, Ill.
New York 17, N. Y. San Francisco 5, Calif.

Circle No. 66 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

NO MATTER HOW YOU LOOK AT IT . . .

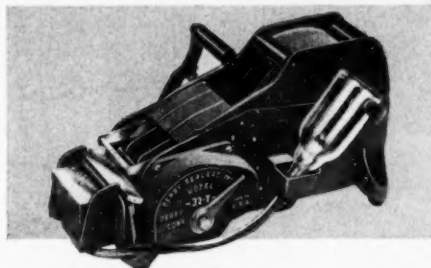
Derby

TAPE DISPENSERS LEAD THE FIELD

- industrial
- commercial
- retail

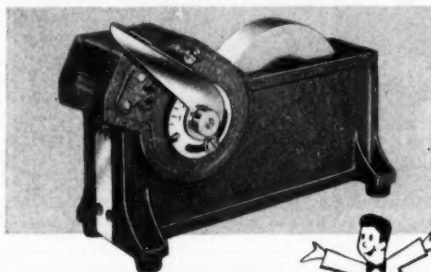


MODEL 80 SERIES Dispense predetermined lengths of the toughest pressure sensitive tapes. Deliver accurate, measured lengths from 1½" to 20" in a variety of widths.



MODEL 32 For general shipping room use — Kraft tapes.

MODEL 32-T For filament reinforced tapes.



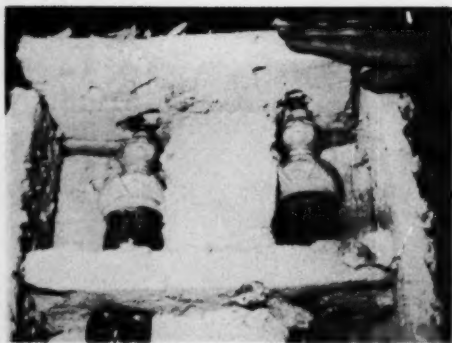
MODEL 90 SERIES The only lever-operated tape dispensers that accurately deliver measured lengths of cellophane tape. Ideal for retail counter . . . locker plants . . . all industry.

QUALITY TAPE DISPENSERS FOR EVERY PRACTICAL PURPOSE

Derby's extensive, comprehensive line of tape dispensers are designed to meet specific customer needs. Rugged shipping room models dispense gummed tape or tough, fibrous carton tapes quickly . . . easily . . . accurately to expedite packaging production. Versatile Grip-A-Tab models are designed to deliver predetermined lengths of a variety of pressure sensitive tapes for every purpose from packaging at the retail counter to difficult industrial jobs requiring speed and accuracy. They'll deliver cloth tape, filament, plastic, electric, glass fibre, woven glass, cellophane, acetate fibre, and a host of other pressure sensitive tapes to suit your particular needs. Although each machine is designed for a specific job, Derby and Grip-A-Tab Dispensers can easily be adapted to handle a multiplicity of packaging operations requiring different widths, lengths and types of tape.

DERBY SEALERS, INC. Derby, Connecticut

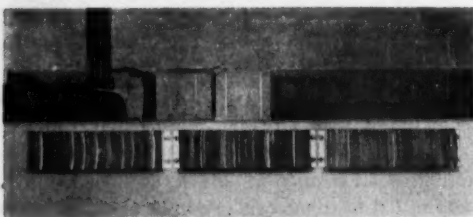
Circle No. 70 on Reader Service Card for more information



Mail Order House Develops

Money Saving Packaging Method

Miles Kimball Co., an Oshkosh, Wisconsin specialty mail order house has developed a shipping technique which has resulted in reduced postage costs, less breakage, lower insurance costs, and a cut in packing time and worker fatigue for packing light weight, fragile products. Basic ingredient for the new method is an extremely light weight phenolic foam cushioning material. It is pre-cut in slabs one to two inches thick and for use in packing, is hand cut or broken into right sizes to fill spaces. Glassware and ceramics are pressed into the end grain of the foam to form cavities that prevent shifting and breaking against each other. The material weighs about one-seventh as much as loosely packed shredded paper and about one-tenth as much as ordinary shredded newsprint.



Take the BUMPS out of your loading docks

Resilient DURABLE Rubber Dock Bumpers absorb the BUMP when truck and dock come together. They're built to **SAVE MONEY** for your business. Check these important facts . . .

- . . . replacement of dock timbers or steel plates eliminated.
- . . . damage to truck bodies and castings become a thing of the past.
- . . . no sharp impact to damage fragile freight—claims reduced.

Don't delay—write for complete facts NOW.

DURABLE
MAT COMPANY

75 N. Pleasant St.
Norwalk, Ohio
2926 16th Ave., S.W.
Seattle 4, Wash.

Circle No. 68 on Reader Service Card for more information
108

**25
TIMES
FASTER!**



You can now print shipping and identification information direct to cartons in actual label form with the Web-O-Print hand printer and Kustom-Kut stencil. This new combination is 25 times faster, easier, and more economical than any other marking system available.

Kustom-Kut stencils are pre-die cut to print any label or form you want. You then type address and other information on stencil . . . slip stencil on the Web-O-Print . . . and you're set for fast, one-hand printing. No more slow, two-handed stenciling operations, messy ink brushes and expensive equipment. Saves cost of printed labels, too. The Web-O-Print is so soft, it will print anywhere . . . wood, paper, cloth, tags, flat and rounded objects.

Enthusiastically approved by shipping superintendents for its sharp, fadeproof and waterproof prints.

FREE TRIAL! Write today for information on free trial offer and sample of Kustom-Kut stencil

Weber

LABEL AND MARKING SYSTEMS
Division of Weber Addressing Machine Co.
217 Central Road, Mount Prospect, Illinois

Circle No. 69 on Reader Service Card for more information
NOVEMBER, 1952 • FLOW



Steel strapping service like this prevents shipping damage

HERE Cliff Onthank, Brainard salesman in Grand Rapids, shows a customer's shipping man how to apply the Brainard Strapping System to make a "floating load" shipment in a boxcar. By strapping all the cartons in a shipment together, the entire load can shift as a unit during impact, and thus avoid damage.

The proper application of steel strapping is just as important as the strap-

ping itself . . . that's why *demonstration* is a key part of Cliff Onthank's job. Like his fellow Brainard salesmen, he has the experience and know-how to give you all-round good service.

To improve your shipping and materials-handling operations, give your problems to your Brainard salesman . . . offices located throughout the U.S. In Canada, P. J. McArthur Company, Toronto.



COMPLETE STEEL STRAPPING SERVICE, LIGHT AND HEAVY DUTY STRAPPING, TOOLS AND ACCESSORIES



WARREN, OHIO

For illustrated catalog write Brainard Steel Division,
Sharon Steel Corporation, Dept. K-11,
Griswold Street, Warren, Ohio.

Circle No. 64 on Reader Service Card for more information

Circle No. 73 on Reader Service Card for more information

All Your Service

CENTRAL FIBRE PRODUCTS CO., INC.

MORE THAN 80 YEARS OF CONTINUOUS SERVICE AND PROGRESS

PAPERBOARDS
Corrugating Material, Liner, Flute, Facing and Set-Up, Boxboard, M. Cap, Tube and Cap, Stick, Box, Case, Partitions, Molds, Quarry, Illinois, Volcanoes, Indiana, Lima, Iowa, Denver, Colorado, Hutchinson, Kansas

CORRUGATED SHIPPING CONTAINERS
C. J. Dowling Box Co., North Kansas City, Missouri, Eastern C. Box, Chicago, Nebraska, Grand Paper Box Company, Denver, Colorado, Western Paper Container Co., Minneapolis, Iowa, Potomac Manufacturing Co., Annapolis, Indiana, Quincy Container Division, Quincy, Illinois, Western Paper Products Co., Salt Lake City, Utah

FOLDING AND SET-UP BOXES
American Folding Box Co., St. Louis, Missouri, Grand Paper Box Company, Minneapolis, Iowa, Western Paper Products Co., Salt Lake City, Utah, Quincy Container Division, Quincy, Illinois

Paperboard Materials Corrugated Containers Folding & Set-Up Boxes Produce House Supplies Expandable Fibre Pallets

MODERN PRODUCTS FOR BETTER PACKAGING AND SHIPPING - and better selling!

Letters to the Editors . . .

(Continued from page 10)

To FLOW:

Please send the writer two copies of FLOW Magazine in which the article titled, "Rubber Conveyor Belting—Proper Care and Maintenance," appeared.

Roy W. Stepanek
The Universal Engineering Corp.

That article appeared in FLOW this past April, and reader Stepanek should have received his extra two copies by now.

To FLOW:

On page 63 of your magazine for June 1952 you show a picture of a pneumatic conveyor for unloading from box car to plant storage. We would appreciate being advised who we may contact in order to obtain more information on such a conveyor.

R. C. Howell
American Steel Foundries

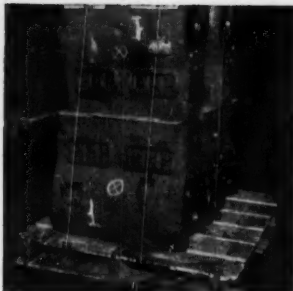
Reader Howell has been informed of the source of this conveyor.

You can cut the cost of every tie with GERRARD

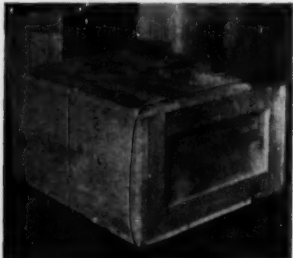
STEEL STRAPPING



▲ With Model Q semi-automatic machine, asphalt shingles are quickly bundled from the conveyor. Operator drapes Gerrard Strapping, presses thumb lever; machine tensions, ties and cuts strapping, and resets itself for next operation.



▲ Diesel engine crankcases are palletized for in-plant movement. 3000 lb. load is firmly secured with 2 Gerrard Straps. (Photo courtesy International Harvester Company, Industrial Power Division.)



▲ Three Gerrard Steel Straps give secure reinforcement to box of oil well machinery. Every Gerrard machine tensions, ties and cuts the strapping quickly and efficiently. Separate seals are not needed.

● Gerrard Round Steel Strapping costs about 40% less than any other metal reinforcement. In addition to this initial saving, the fast, efficient, dependable operation of Gerrard machines can help you cut tying time and speed production.

You need not worry about the strength of the Gerrard tie. It has been job-proved on parcel post packages, heavy pallets and carload shipments of steel pipe and plate. It complies fully with Army-Navy specifications JAN-P-106A, JAN-P-107, and JAN-P-108 for overseas packing. It assures tight, safe reinforcement from shipping point to destination.

It will pay you to investigate the Gerrard Method of Strapping for possible savings to your tying operations. Contact a Gerrard engineer for the latest information. His advice on packaging problems is available free of charge. Write for a free copy of the Blue Book of Packaging.

GERRARD STEEL STRAPPING DIVISION, UNITED STATES STEEL COMPANY
2937 West 47th Street, Chicago 32, Ill.

U-S-S GERRARD ROUND STEEL STRAPPING



UNITED STATES STEEL

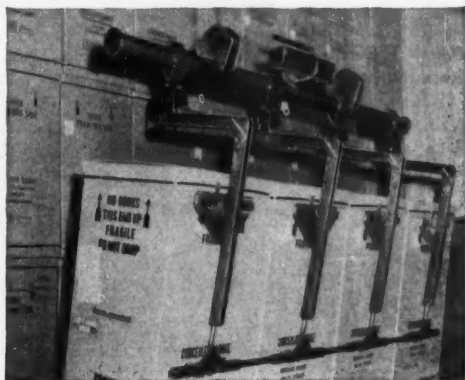
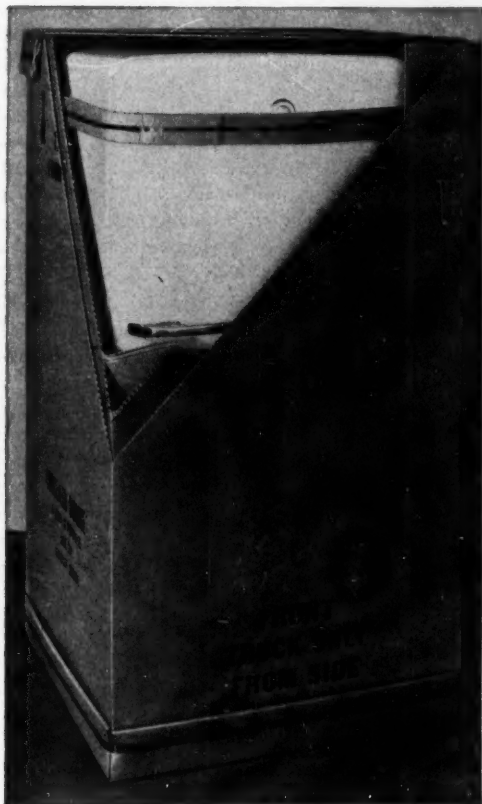
Circle No. 72 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

CUSTOM DESIGNED

HEAVY-DUTY SHIPPING CONTAINERS

International's heavy-duty corrugated shipping containers are now being used for such products as stoves, water heaters, washing machines, refrigerators and furnaces. Each product presented its own individual packaging problems.



GENERAL ELECTRIC and our Container Division engineers designed and thoroughly tested this new package which provided better protection and enabled improvements in material handling methods. It was the first of our inter-locking TUBE-AND-CAP construction. Scored and folded corrugated sheets brace the refrigerator inside the outer container.

For lifting, a special fitting was developed to eliminate a fork: a U-shaped lip that hooked under the edge of the top cover. (See above) In G. E.'s warehouse 4 refrigerators are picked up at one time.

After thousands of successful carload shipments damage claims have been less than for the previous type of package. The corrugated fibre container is now used for all G. E. household refrigerators.


International Paper company

CONTAINER DIVISION

220 East 42nd Street, New York 17, N. Y.

Los Angeles 54, Cal.
5120 South Soto St.

Kansas City 3, Kan.
2102 Kansas Ave.

Somerville 45, Mass.
Clyde & Warwick Sts.

Whippany, New Jersey

Cleveland 13, Ohio
1001 Terminal Tower

Philadelphia, Penn.
1126 Lincoln-Liberty Bldg.

Chicago 38, Ill.
5133 West 65th St.

Springhill, Louisiana

St. Louis 11, Mo.
7901 Michigan Ave.

New York 17, N. Y.
220 East 42nd St.

Wooster, Ohio
689 Palmer St.

Georgetown, So. Carolina

Circle No. 65 on Reader Service Card for more information



ICE IN THE BAG. Yes, you can buy ice in sturdy paper bags. The bags, in this case, were once closed with twists of wire. But the local Bostitch economy man showed the ice manu-

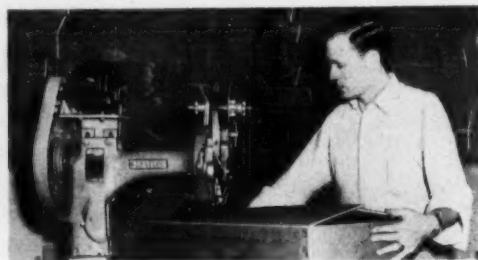
facturer how much better looking, stronger, and more salable staple-sealed bags are. Now all ice plants in the chain use Bostitch stapling pliers to close ice bags.

BAGGING ICE... OR BOXING A FOREST...

BOSTITCH DOES IT BETTER AND FASTER!

YOUR CHRISTMAS TREE arrives in a big corrugated container when you order it from this famous Northwest packer. The bottoms of the boxes are closed with a Bostitch wire stitcher. The Bostitch method saves packing

time, cuts material costs, eliminates losses due to moisture-loosened seals. Boxes can be made up as needed—no storage problem. Bostitch could save time and money in *your* shipping room, too.



FREE BULLETIN describes 20 of the 800 Bostitch models most often used for wrapping, packing and container closing. Send coupon.

THERE'S A BOSTITCH MAN NEAR YOU—500 fieldmen in 125 cities in the U. S. and Canada. Bostitch service is always nearby.

BOSTITCH

711 Mechanic Street, Westerly, R. I.

Please send me a free copy of your bulletin on Bostitch stapling machines for shipping-room use.

I am particularly interested in a better and faster method for:

- | | |
|---|---|
| <input type="checkbox"/> Assembling cartons | <input type="checkbox"/> Repairing cartons for re-use |
| <input type="checkbox"/> Bottoming | <input type="checkbox"/> Bag-sealing |
| <input type="checkbox"/> Top-sealing | |

- | | |
|--|---|
| <input type="checkbox"/> Sealing corrugated wrappers | <input type="checkbox"/> Covering barrels |
| <input type="checkbox"/> Other | <input type="checkbox"/> Tagging |

Name _____
Company _____
Address _____
City _____ Zone _____ State _____



AND FASTER
fastens it better with wire

ALL TYPES OF MACHINES FOR APPLYING STAPLES
ALL TYPES OF STAPLES APPLIED BY MACHINES

Circle No. 75 on Reader Service Card for more information

Loading and Unloading Heavy Machinery...

(Continued from page 106)

protection against all weather conditions and for ease of operation in loading and unloading.

Cars for Generators

Each generator car is constructed with six permanent wood skids bolted to the wood deck. These skids are arranged so as to permit anchoring with bolts and .035 x 1 1/4" band iron. Housings are designed for protection against weather, hinged with removable pins and detachable front panels. These housings were constructed so they could be laid on their sides for loading at Erie, and the complete housing removed for unloading at the destination.

The cars have proved completely satisfactory. The inauguration of this entirely new method of shipping has resulted in a tremendous reduction in both costs of skidding and blocking and in loading time. Moreover, the increased efficiency of space utilization released additional cars for other shipping services. Savings amounting to thousands of dollars annually are being realized by reducing the amount of material, labor and freight charges.





PAUL BAILLARGEON,
WORLD'S
STRONGEST
WRESTLER

World's strongest tape?

It lifts heavy sand cores in this
University test of a new foundry method

FOUNDRY INSTRUCTORS at the University of Minnesota got an idea when they saw the surprising strength of "Scotch" Brand Filament Tape. Why not use it to lift heavy sand cores into position in the casting molds? They tried it, and it worked. Lifting eyes and straps were eliminated. Testing indicates this may prove to be a new valuable time-saving method.

New ideas come fast to users of "Scotch" Brand Filament Tape because "Scotch" Brand Filament Tape is a new idea in tapes. It's a combination of super-strength *plus* resiliency in a pressure-sensitive tape—a tape that sticks right off the roll with no adhesive activators necessary.

Thousands of continuous rayon or glass filaments run through the tape to give this super strength. And these filaments are imbedded in an elastic,

pressure-sensitive adhesive that sticks to the job, holds *tight* to the job right off the roll.

Think how you can save with "Scotch" Brand Filament Tape! Try it for bundling, banding, palletizing, reinforcing—all kinds of heavy-duty jobs. Your supplier has many widths and colors. Order a supply today!

The term "Scotch" and the plaid design are registered trademarks for the more than 200 pressure-sensitive adhesive tapes made in U. S. A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Sound Recording Tape, "Undersol" Rubberized Coating, "Scotchlite" Reflective Sheeting, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.



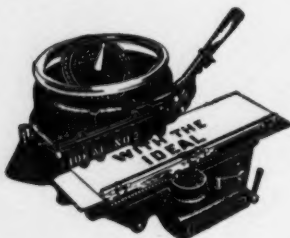
Circle No. 76 on Reader Service Card for more information

**MARK THESE
WORDS WELL...**

**EVERY CUSTOMER
EVERY ADDRESS
U. S. A.**

with IDEAL.

**Stencil Marking
Equipment**



IDEAL.

STENCIL MACHINE

Shifts like a typewriter. Automatic carriage return and line spacer. Visible cutting. Minimum Margin Grip saves 25% on stencil board. Made in three popular letter sizes.



**HANDY ANGLE
FOUNTAIN
STENCIL
BRUSH**

STOPS FATIGUE

Natural grip for easy wrist-action. Push-button control. One-piece construction, leakproof.

IDEAL.

STENCIL INK

Complete line of black and colored fountain brush and metal marking inks. Free flowing, quick drying.

FREE "IDEAL SHIPPING GUIDE." Handy money-saving shipping room hints.

IDEAL

104 Iowa Ave. Belleville, Ill.
Circle No. 77 on Reader Service Card
114

Adhesives . . .

(Continued from page 100)

take. Properly glued flaps should be stronger than the box fibres, so that on ripping open, the box failure will have to be in the board itself rather than at the glue line.

In general, two methods are used in the application of glues to containers. Brush application is probably the most widely used, and for installations where quantities are not great, or where box size varies continually, it is usually economical enough. Where production line methods are desirable, a wide variety of automatic or semi-automatic sealing machines can be used.

Brush application

For maximum sealing speed and coverage, a thin glue film should be applied to container flaps. The adhesive should have more fluidity than that required for semi-automatic and automatic machine application. As soon as the adhesive has been applied, or after a short tempering interval, dependent on the type of adhesive being used, the flaps are pressed together and held under pressure for the

required length of time by the weight of other filled containers.

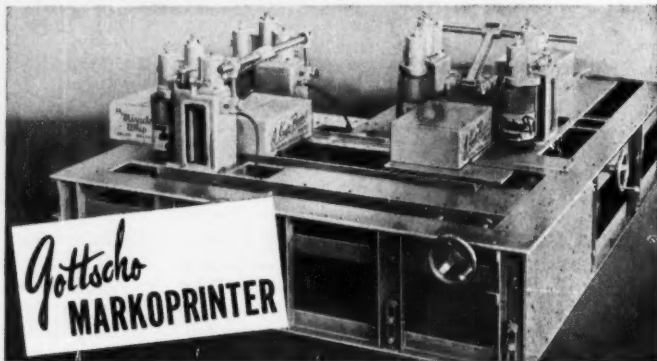
Machine application

Hand brush sealing operations can be "mechanized" by the use of motor driven pressure units. The sealed cases are pushed into the unit as soon as flaps have been glued, actuating a switch which carries the box into the unit on two endless belts running on spring rollers which are adjustable to any size container or pressure desired.

Fully automatic case sealing machines apply the adhesive to tops and bottoms or both at the same time. Application is by roller applicator revolving in a glue pan or by spray or jet applicators. Rollers may be either single or double depending on the manufacturer's specifications. Usually they are adjustable to skip-glue or overall-glue the container as may be desired.

FLOW thanks the following companies for their help in preparing this survey: E. I. DuPont de Nemours & Co.; B. F. Goodrich Co.; Minnesota Mining & Mfg. Co.; National Adhesive Div. of National Starch Products, Inc.; Paisley Products Inc. Div. of Morningstar Nicol, Inc.

**How much can your company save . . .
by printing cases as you pack them?**



**. . . prints corrugated, fibre and wood
shipping cases automatically!**

Investigate this new machine. Find out how it can slash your shipping case inventories. . . speed up product flow . . . reduce labor cost . . . cut losses from obsolescence. The MARKOPRINTER takes filled cases from sealing or packing station . . . prints **complete display copy** on up to 5 sides in a single pass . . . discharges them to next station—all **automatically**. Delivers consistently superior print quality at speeds up to 2000 cases per hour. Changeover for different copy, different case sizes accomplished in **minutes**.

ADOLPH GOTTSCHO, INC., Hillside 5, N. J.

**Write for descriptive
bulletin today**

Gottscho

Circle No. 78 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

**FREE LITERATURE YOU
CAN GET ON PACKAGING
& SHIPPING PRODUCTS...**

Metal Corrosion:

The current issue of "Technical Advisor" from Reynolds Metals Company features a technical article on how and why metals corrode. In addition, it contains some hints on the uses and property of aluminum.

Circle No. 247 on Reader Service Card

Bag Sealing Machine:

A catalog sheet illustrating and describing the Amsco automatic jaw bag sealing machine for cellophane, polyethylene, ploi film, heat-sealing papers, glassines, foils and plastic films is available from Amsco Packaging Machinery, Inc.

Circle No. 248 on Reader Service Card

Pressure-Sensitive Tapes:

How eight "Scotch" brand pressure-sensitive tapes can be used for various labeling, decorating and identifying tasks is shown in a 6-page folder from Minnesota Mining and Manufacturing Co. It contains photos and drawings of typical tape applications, as well as a table listing the properties of the eight tapes.

Circle No. 249 on Reader Service Card

Vapor Wrap:

Angier Corporation has prepared an illustrated folder describing some wrap. Advantages of the vapor method of the applications of this firm's vapor od of preservation in the metalworking industry are listed.

Circle No. 250 on Reader Service Card

Steel Strapping:

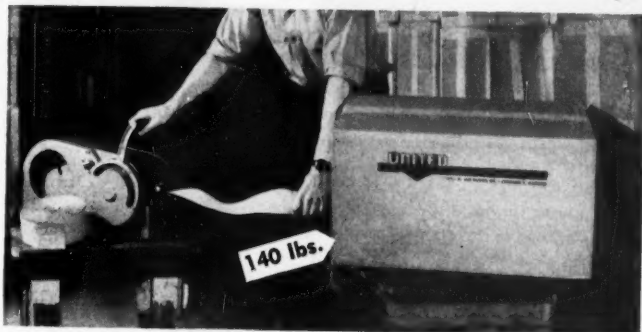
The current issue of "The Signode Seal", external house organ of Signode Steel Strapping Company, features an article on steel. This 8-page magazine contains information on safe shipping through better packaging protection and freight bracing.

Circle No. 251 on Reader Service Card



No matter what your cartons weigh

**SAVE when you seal 'em
the SNAKE TAPE - way**



▲ **SUBS FOR STEEL STRAP** Snake Tape is reinforced to give strap-like strength. Here 140 lb. cartons of auto parts are quickly sealed to stay sealed. (United Parts Mfg. Co.)



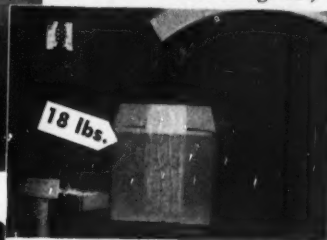
◀ **3 TIMES FASTER**

Because Snake Tape is so strong, only TWO strips are used. Cuts sealing time two-thirds over previous method. (Atlas Collapsible Tube Co.)

▼ **SAVES DAMAGE**

Center seamed sealed for sure protection at lowest cost.

(A. L. Hansen Mfg. Co.)



Free!

20 yd. sample

SNAKE TAPE is gummed, waterproof and reinforced! Easily dispensed by "cut off" type machines. Send now for sample and facts.



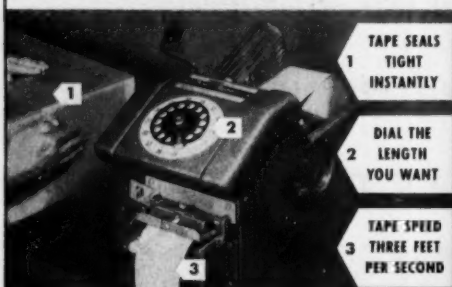
Angier
CORPORATION

Framingham 13, Massachusetts
Distributors in Principal Cities

Circle No. 79 on Reader Service Card for more information

Circle No. 67 on Reader Service Card for more information

NOW—Marsh Saves You 20% on GUMMED TAPE SEALING COSTS!



Means New Speed, Better Packaging in Your Shipping Department

Users report 20% saving in tape, 50% saving in time, stronger seals and neater packages. Handles tape 1" to 3" wide. Rugged construction. Weight 50 lbs. 110 Volt, 60 Cycle, A.C. Savings soon pay for it.

FREE DEMONSTRATION ON YOUR OWN WORK • WRITE FOR BULLETIN DT AND PRICES

MARSH STENCIL MACHINE COMPANY
67 Marsh Bldg.
Belleville, Ill., U. S. A.

MARSH *Electric*
Dial-Taper

MARKED in Aluminum Ink* —ideal for dark metallic surfaces

Marking steel drums, tools, parts, pipes, etc. is smooth sailing with the Flo-master Felt-Tip Marker. It marks on any surface—glass, wood, plastic, etc.

*The complete range of ten colors in Flo-master Inks permits speedy and accurate identification for assembling, stocking, inspecting.

Flo-Master semi-opaque inks—waterproof, non-smudging, fast-drying—are recommended for hard-to-mark surfaces using the KING SIZE Flo-master (illustrated). For general purpose marking—cartons, cases, etc.—use Transparent Inks with POCKET SIZE Flo-master.

Contact your supplier or write direct to—
Cushman & Denison Manufacturing Co., Dept. F-5,
153 West 23rd Street, New York 11.

Flo-master
FELT-TIP MARKER

Circle No. 80 on Reader Service Card for more information
116

PACKAGING & SHIPPING NEW PRODUCTS . . .

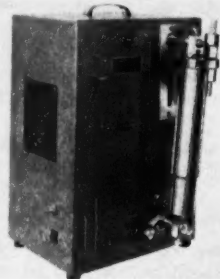
(Continued from page 97)

weight tailored package. This material features kraft paper, scrim, and cottonet backings for added strength and protection.

Circle No. 212 on Reader Service Card for more information

Vial Filling Machine—National Instrument Company

Up to 1200 4 oz. vials per hour can be filled with this new Filamatic Model AB 4 Automatic Pipette and Vial Filling Machine says the National Instrument Company. It is designed for delivery of liquids into vials, ampoules and small containers, including sprinkler neck bottles, and it will dispense anti-biotics, aqueous solutions, oils, alcohols, and pharmaceutical preparations of all types, at speeds adjustable from 6 to 90 fills per minute.



claims the firm. An adjustment is provided to eliminate foaming even with low vapor pressure liquids such as acetone, benzene or alcohol it is reported. A desired volume can be duplicated by setting the micrometer reading as required. Portable, the machine may be operated wherever there is a source of current and fill directly from any drum or container. An electric counter indicates the total number of fills. Accuracy of fill is said to be up to 1/10 of 1 percent, regardless of variations in bottle size. The sterilizing by loosening two knurled thumb screws. For corrosion resistance, the filling unit is fabricated of type 18-8 stainless steel. The Filamatic occupies 8 in. x 11 in. of bench space and weighs 30 lbs.

Circle No. 213 on Reader Service Card for more information

Potato Protector—Wood Conversion Company

Designed to protect a carload of potatoes in transit, Tufflex "Spud-Pak" is manufactured by Wood Conversion Co. the pak consists of 14 pieces of Tufflex 27x88 in., with heavy kraft perforated paper on one side. The Tufflex is intended to keep the spuds from burns and bruises; the kraft paper helps ventilate them and provide further protection. One Spudilation.

Circle No. 214 on Reader Service Card for more information

Roll-Shear Cutter

—The E. O. Bulman Mfg. Co., Inc.

To reduce handling of industrial packaging and wrapping materials that are hard to handle, this roll-shear cutter dispenses waterproof kraft, ordnance wraps, creped or cellulose wadding, corrugated or corded papers, vapor wrap, laminated and asphalt impregnated papers, and similar materials. The holder and cutter is constructed of steel, and the cutting plate is designed so that all four edges can be utilized if and when one edge becomes worn.

Circle No. 208 on Reader Service Card for more information

WHAT DO YOU WANT TO KNOW?

Information on any item will be sent if you circle the correct number on the Reader Service Card.

Circle No. 82 on Reader Service Card for more information

STOP

BUYING LABELS

● NOW YOU CAN PRINT YOUR OWN LABELS AT THE SAME TIME YOU ADDRESS OR MARK THEM!



More firms everyday are eliminating the need for expensive, troublesome pre-printed shipping and identification labels with the new Weber Tag-O-Graph. This amazing machine prints, addresses, or marks shipping and identification labels from a roll of gummed or ungummed stock, in one continuous operation... at the rate of 100 to 150 per minute. And counts and cuts them to practically any size you want, too! Reproduces from an inexpensive, easily-prepared stencil.

✓ Prints, addresses, marks labels in one operation.

✓ Counts and cuts them to size, too.

✓ Fast—100 to 150 labels per minute.

✓ Produces hundreds of different size labels.

Why not have the size and type of label you want... in the quantities you need... when you want them... all at a moment's notice?

Write today for samples of labels printed by this machine and further information.

Weber Addressing Machine Co.

211 West Central Road • Mount Prospect, Illinois

"For the answers to all your addressing, labeling and marking problems"

CUT CLOSING COSTS

with the Economical and Efficient...

● Requires no installation, supports or plant space... merely plug into any electrical outlet

● Entirely portable... weighs only 10½ pounds

● Handles all types of textile bags and most paper bags

● Economical to use... economical to buy!

● Unconditionally guaranteed!

FISCHBEIN Portable BAG CLOSER

Lightweight, practical, handy, easy to operate! Efficiency and reliability proved by over 4000 users in every part of the world under varying operating conditions. For details on how YOU can cut YOUR Bag Closing costs with the FISCHBEIN Portable BAG CLOSER... write:

DAVE FISCHBEIN CO.
Industrial Sewing Machinery

DEPT. 48 38 GLENWOOD AVE.
MINNEAPOLIS 3, MINN.



Men In The News . . .

(Continued from page 18)

. . . at Flexible Tubing Corp.

The appointment of Robert H. Poulton as representative-technical sales has been announced. He will assist W. L. Guiles, manager-technical sales.

. . . at Hewitt-Robins Inc.

Austin Goodyear has been elected a director of the company. He is general manager of two divisions of the company—the rubber division, which manufactures conveyor belting and the conveyor division.

. . . at Industrial Research, Inc.

W. Trent German has been ap-

pointed California representative of Industrial Research Inc. He will distribute a new automotive accessory, the Hydrocap. Announcement was made by R. F. Sadler, president.

. . . at B. F. Goodrich Co.

Elmer A. Stevens became treasurer of the company according to a recent announcement by John L. Collyer, president. He was formerly director of purchases, and has been with the company since 1928.

Richard T. Bules has been appointed manager, V-belt sales, industrial sales department. He succeeds George F. Fischer who resigned recently. With the company for the past 12 years, Bules has been in the V-belt sales department since 1946.

. . . at United States Rubber Co.

In an organization change announced recently by Lawler Reeves, sales manager, U. S. Tires division, C. H. Schlichter, formerly the market identification manager, was appointed manager of U. S. Passenger Tube sales.

Succeeding Schlichter in his former post is A. L. Broggi, who has been in charge of distributor promises and layouts since 1944.

T. E. Berry, who has been with the company since 1932, has been promoted to assistant divisional manager on the west coast. W. B. Swartz has been transferred from St. Louis to Milwaukee as district manager, succeeding R. B. Redick, who has taken on a U. S. Royal distributorship franchise. Swartz has been succeeded at St. Louis by F. C. Tucker, former district manager at San Antonio and Memphis.

. . . at Aeroquip Corp.

Appointment of two men to top executive positions has been announced by Peter F. Hurst, president. George J. Fischer is now general sales manager for the company, and Matthew J. Betley is works manager.

INDUSTRIAL TRUCKS

... how to tell when they are

Busy?

Idle?

Lifting?

Engine Running?

Also—When to Overhaul!

PUT ON Servis Recorders!

A couple of screws or bolts does the job. Then the truck itself writes its own story!




SERVIS RECORDER—closed. Just bolted on—no connection with any moving part.

THE CHART

Wax covered, no ink or pencil needed; a sapphire stylus marks the record—a picture of the day's work at a glance.

Write for the full story—
Ask for Bulletin I. T.

THE SERVICE RECORDER CO.
1375 Euclid Avenue • Cleveland 18, Ohio

The Servis Recorder
Keeps Trucks Busy

★ **LET US SHOW YOU** how Buick, Thompson Products, and others are getting big results with Servis Recorders.

Circle No. 58 on Reader Service Card for more information

... at Hyster Company

The appointment of **Walter A. St. Clair** to head Hyster Company's newly created national accounts office in Chicago has been announced. St. Clair has been with the company since 1945 and had factory training before joining the sales department. **Don C. Hosler**, manager of material control and economic manufacturing quantities for Hyster, has been elected secretary-treasurer of the Portland (Oregon) Control of the Controllers Institute.

... at RCA Victor Division

Edward Stanko, veteran RCA engineer and pioneer in radio and television since the 1920's, has been appointed to the newly created post of manager of engineering, technical products division. The announcement was forthcoming from **W. L. Jones**, vice president in charge of technical products for the company.

... at General Electric Co.

In a recent announcement **William Rogers Herod** was named a vice president of the company and will continue as president of the International General Electric Co. which he has headed since 1945.

At the same time it was announced that International GE, which has been a wholly owned GE affiliate since 1919, merged with and became a division of General Electric effective July 31.

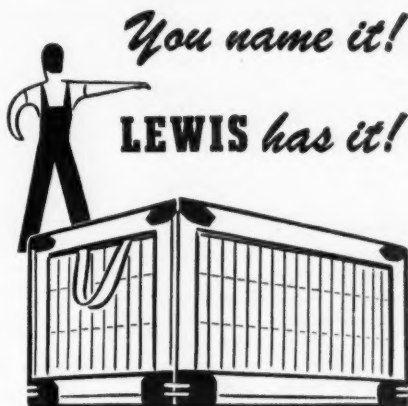
... at Minnesota Mining & Mfg. Co.

Executive engineer in charge of engineering research is the title awarded **Donald R. Guthrie** recently, according to an announcement by **C. P. Pesek**, vice president in charge of engineering and properties. Guthrie will organize an engineering research group in chemical engineering, machine development and instrument engineering.



A BIRD IN THE HAND IS WORTH TWO IN THE BUSH

—as the saying goes. And just like the saying, the information that is available from manufacturers of handling equipment isn't doing you any good unless you have it in your hands. That's why the Reader Service Card is bound into each issue—to make it easy for you to get the details you want. Use the card every month. There is never any obligation.



LEWIS STACKING BOX — Stacks easily and solidly. With cover, serves as shipping container.

"Profit Getters" — these Lewis Containers are tough customers ready to tackle any materials handling problem. Lifetime strength of selected northern elm slats laced with steel wire. Smooth, rounded corners assure snag-proof edges. Heavy gauge three-way steel corner irons lock rugged dovetail joints. Ready for delivery! Special requirements engineered to specifications.

Representatives from coast to coast.



611 MONTGOMERY ST. • WATERTOWN, WISCONSIN



SKID-BOX

Specialty designed for use with modern stacking and handling equipment.



STACKING BOX

Panels of strong, durable webbing with outside framework.



BOX TRUCK

Efficiently handles light, bulky material. Highly maneuverable.



MASONITE BOX TRUCK

Smooth, tight interior. Masonite Plywood panels.



FOLDING BOX

Folds into one-fourth normal space.

Circle No. 59 on Reader Service Card for more information

What's

NEW in useful literature

The publications featured on these pages were written by experts. They are FREE publications. To obtain them use the postcard bound into this issue.

Graphic Chart Presentations:

Information describing the use of "PictoTapes" in graphic chart construction is available from Chart-Pak, Inc. The pressure sensitized tapes in a wide variety of patterns are designed to put new life into dry statistics. The self-adhering tapes, $\frac{5}{8}$ " wide, come in rolls 300 inches long, and may be applied readily to many materials, such as paper, cloth or plastics.

Circle No. 220 on Reader Service Card for more information

Safeguarding Your Labor Pool:

An interesting article appearing recently in the Clark Equipment Co. Employees News describes how that company is protecting its future supply of skilled machinists and mechanics. An elaborate apprenticeship program has been developing at Clark's since 1939 in which young men are given an opportunity to share their careers in the industry. The plan assures the company, too, of a supply of skilled employees at all times. The plan is no secret and copies of the article may be helpful to other manufacturers.

Circle No. 221 on Reader Service Card for more information

Small Road Repair Equipment Aid:

The answer to a problem confronting many small highway contractors and municipality road crews may be found in the new bulletin No. 804 recently released by the Barber-Greene Co. It describes their portable one-unit MIXALL machine. The Mixall was designed to prepare and mix materials for patching breaks and failures in both bituminous and concrete roads.

Circle No. 222 on Reader Service Card for more information

Give Your Machine Operator A Lift:

Punch presses, forming and cutting machines having automatic feeds often present a problem to the operators in the handling of strips and sheets being fed into the machine. A bulletin No. 262 released by the Raymond Corporation describes their 2000-lb. model Hydraulic sheet feeding table. It is designed to speed up feeding,

eliminate hazards and reduce worker fatigue. Full specifications and photographs are incorporated into the bulletin.

Circle No. 223 on Reader Service Card for more information

Electric Log Carriage For Sawmills:

The General Electric Co. has made available reprints of an 8-page article describing its amplitudyne-controlled electric log carriage drive for sawmill operators. The well-illustrated folder emphasizes the advantage claimed by the manufacturer for the electric drive, which are said to include low operating cost, minimized maintenance expense, ease of operation, and quick acceleration and deceleration.

Circle No. 224 on Reader Service Card for more information

Highway Gravel And Sand Spreaders:

A new catalog describing the many features of the recently introduced Model 5 Buckeye Spreader has been announced by Gar Wood Industries, Inc. The bulletin also describes the attachments necessary for spreading wet sand and extra-course materials. The manufacturer emphasizes such features as controlled volume and rate of spread which are maintained uniformly by its power mechanism geared to the spreader wheels.

Circle No. 225 on Reader Service Card for more information

For Low-Speed Geared Power:

A beautifully detailed full-color litho folder describing the Type GW Synchrogear has been released by the manufacturer, U. S. Electrical Motors, Inc. The product is a low-speed right-angle worm-gear motor completely housed as a single unit. It is said to be designed to fulfill numerous applications where low speeds and precision gearing are necessary.

Circle No. 226 on Reader Service Card for more information

Fool-proof Bin Level Indicator:

The manufacturer maintains the simplicity of design and principle of the Convair Bin-Vue assures its fool-proof characteristics. The explanatory folder now avail-

able indicates that any dry material that flows can be accurately measured for bin level. Electrically powered, they are manufactured in a variety of models.

Circle No. 227 on Reader Service Card

Hydraulic Body Lift Hoists:

A new line of "Dump-It" hydraulic dump body hoists are introduced in literature available from St. Paul Hydraulic Hoist Co. The redesigned unit features stress and shock elimination, according to the manufacturer. The units are built to fit both long and short wheelbase trucks and can be installed to fit from 7 to 15-ton use capacity.

Circle No. 228 on Reader Service Card

Silicone Rubber Popularity:

The rapidly increasing acceptance of silicone rubber as an important engineering material is shown throughout the recently released bulletin, "Silastic Facts No. 10A". The comprehensive review is the work of the Dow Corning Corp. and will be of particular interest to seal and gasket manufacturers, hose and dielectric producers.

Circle No. 229 on Reader Service Card

Guide To Floor Resurfacing:

The Tufcrete Co. has available a color brochure depicting its process for rejuvenating worn and uneven industrial floors. Numerous products are manufactured by the company to fit any degree of floor deterioration. They invite requests for complete detailed information.

Circle No. 230 on Reader Service Card

Vital Power Transmission Links:

An article by William Staniar, mechanical consulting engineer, appears in a recent issue of the Power Transmission Council Bulletin, which elaborates on the vital use of flexible couplings in power transmission. Copies of the treatise may be secured upon request.

Circle No. 231 on Reader Service Card

Warehouse And Tank Protection:

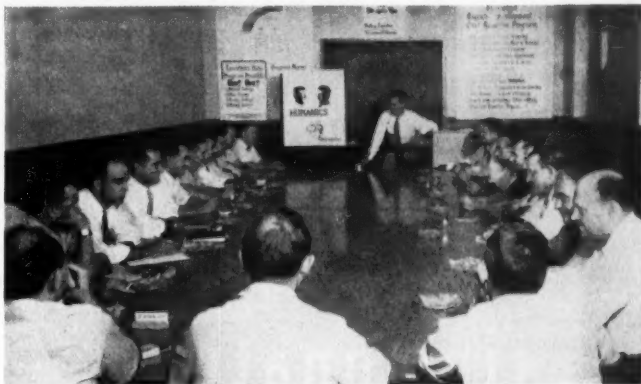
A 4-page bulletin describing Monco-Alochrom aluminum paint is available from the Monroe Co., Inc., and is uniquely printed in aluminum and black. The bulletin explains the protective characteristics of the coating which is said to be ideal for painting of metal buildings, roofs, storage tanks and machinery constantly exposed to the weather.

Circle No. 232 on Reader Service Card

Car Loading Headaches??:

An interesting folder being sent out by General American-Evans Co. invites inquiries from harrassed manufacturers who consistently find their products arriving at destinations looking like they went through an atom bomb blast. The literature assures shipping superintendents much calmer nervous systems through the use of GAEX-DF improved box cars.

Circle No. 233 on Reader Service Card



WHEELER-BRADY Cost Reduction

Program In Progress At

P. R. Mallory & Co., Inc.

More than 300 executives, division managers, department heads, supervisors, foremen, and representatives from service departments are learning how to reduce costs, improve material handling and plant layout, and more effectively administrate supervisory activities at P. R. Mallory & Co., Inc., Indianapolis. This company is one of the world's largest manufacturers of electric, electronic and metallurgical components for radio, television, automotive, household appliances, as well as for the armed forces.

This extensive conference program, developed and executed by Wheeler-Brady, Inc., Cleveland consulting firm, covers a 12-week period, with 13 conferences per week plus additional meetings on the night shift. Approximately 20 men sit in on each conference.

The course, which is labeled "Cost Reduction Training Program", covers such subjects as "Methods Improvements", "Methods Demonstrations",

"Plant and Work Area Layout", "Material Handling", "Keeping Equipment In Top Condition", "Importance of Cost Reductions", etc.

Keys to the training program are a variety of informative, highly successful visual aids. These aids take the form of colorful charts and other demonstration devices; phonograph, memory jogger pads, bulletin board signs, etc. Each participant in the program receives a comprehensive executive manual containing detailed material on each conference.

Cost Reduction Training Can Pay Off For You Too. Write For Descriptive Bulletin DE 11. There Is No Obligation Of Course.

W·B WHEELER·BRADY
INC. 15017 DETROIT AVE.
CLEVELAND 7, OHIO
Phone — Lakewood 1-0306

Circle No. 61 on Reader Service Card for more information

More Tonnage Per Day:

Bulletins L-402, L-204, C-100 and C-100-B obtainable from Contractors Machinery Co., Inc., point towards the production features of that company's Trojan Loadsters. Each bulletin describes a Loadster model for a specific capacity requirement, giving detailed specifications and other important data.

Circle No. 234 on Reader Service Card

Built For Appliance Handling:

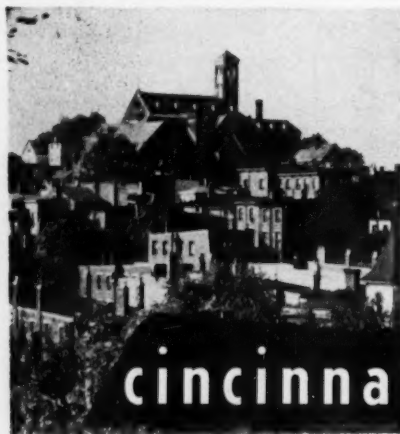
An informative sheet prepared by the Dutro Company presents its line of special hand trucks designed especially for ease in the handling of heavy appliance and furniture. The literature explains how Dutro trucks fulfill the need for trucks built to handle such items as refrigerators, stoves and radios without danger of marring enameled or veneer finishes.

Circle No. 235 on Reader Service Card

Too Hot And Heavy To Handle:

A four-page folder offered by the Forker Corporation shows many applications of its Ohio Tramrail Systems in foundry operations. Crucibles of hot metal are moved from furnace to molds via the overhead system. The manufacturer points out that the same versatility in this application can be duplicated in many other operations.

Circle No. 236 on Reader Service Card



● MT. ADAMS, one of the oldest settled areas of Cincinnati's "7 Hills". Here live many of the highly skilled, happy workmen who take pride in producing some of the world's finest machine tools, valves, soap, pianos - engineered conveying systems.

A-F Completely Co-ordinated Conveying Systems.

cincinnati

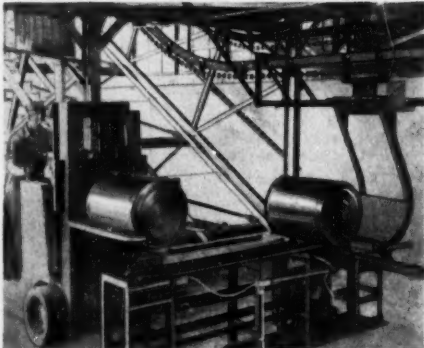
home of

ALVEY-FERGUSON

the original - Since 1901

engineered conveying systems

After removal from truck-side cars, barrels of compound are loaded onto the Alvey-Ferguson chain conveyor feeder which starts them upward by means of the A-F Overhead Trolley to a completely co-ordinated plant wide conveying system.



Alvey-Ferguson engineers all types of conveying systems for all types of industry. Write, without obligation, for a discussion - today.



THE ALVEY-FERGUSON COMPANY

438 Disney Street, CINCINNATI 9, OHIO • OFFICES OR REPRESENTATIVES IN PRINCIPAL CITIES

Circle No. 62 on Reader Service Card for more information

It's Done With Boxes:

"Corrugations," a 12-page booklet published by Stone Container Corp. describes the role of corrugated paper-board boxes in modern merchandising. Free copies are available upon request.

Circle No. 237 on Reader Service Card

Military Packaging Revision:

Reynolds Metals Co. has issued a revised edition of its Military Packaging handbook. It includes changes in both military requirements and Reynolds products. Recipients of the book will receive periodic additions in page form which will keep the data up-to-date at all times. Included in the presentation are actual samples of aluminum packaging materials.

Circle No. 238 on Reader Service Card

New Conveyor Catalog:

Prab Conveyors, Inc. are announcing the availability of a catalog describing their specialized conveying equipment. Included are drawings, engineering data and photographs of applications of Prab's new steel belt conveyor.

Circle No. 239 on Reader Service Card

Engineered Storage:

A new illustrated color catalog in 16 pages entitled, "The Science of Economical Shelf Storage", has been published by the Frick-Gallagher Mfg. Co. The book discusses benefits derived through the use of Rotabin rotary shelves, according to the manufacturer. Rotabin, they maintain, brings about a savings in floor space of up to 50 per cent and increases efficiency in tool and supply rooms.

Circle No. 240 on Reader Service Card

Cost Reduction Program:

Cutting costs and increasing plant efficiency are covered in a 12-week Cost Reduction Program detailed in a folder offered by the consulting firm of Wheeler-Brady, Inc. Beamed at executives, supervisory and administrative personnel, the literature describes twelve subjects, one for each week, which are covered in a combination of discussion and demonstration symposiums.

Circle No. 241 on Reader Service Card

Torque Converter Information:

The Torcon Corp. has announced the publication of a new bulletin No. TC-649, describing the Torcon hydraulic torque converters for medium and heavy-duty applications. The new bulletin features unit size selection charts based on engine r.p.m. and net horsepower as well as more comprehensive data on the purpose, construction and operation of converters.

Circle No. 242 on Reader Service Card

A Basket With A Purpose:

Literature and even a test sample of the Jaxon Production Carrier, wire mesh baskets, are available from Jaxon Wire Products Co. Designed to step up material handling in the gear and metal parts industries, the basket's open mesh construction allows draining of oil and other liquids when parts are removed from machines or washing operations.

Circle No. 243 on Reader Service Card

Overcoming The Dock Gap:

A descriptive data sheet showing how MagLine magnesium dock boards eliminate the gap between truck beds and loading docks may be obtained from MagLine, Inc. The color sheet gives full specifications for boards in widths from 36 to 60 inches.

Circle No. 244 on Reader Service Card

Prolonging Machinery Life:

Gulf Oil Corporation has compiled a lubrication and maintenance guide for contractors and allied equipment users. The 95-page booklet expounds the theory that proper lubrication prolongs the life expectancy of heavy, costly machinery. The information contained covers motors, geared mechanisms, bearings, wire cables, electrical and cooling systems.

Circle No. 245 on Reader Service Card

Power Shovel Glamour:

A large picture book of its Model 255-A power shovel has just been published by Harnischfeger Corp. The 24-page color bulletin makes liberal use of detailed photos showing design features of their $\frac{3}{4}$ -cubic yard machine which they claim is easily converted for seven different services: shovel, dragline, crane, clamshell, trench hoe, pile driver and magnet crane. The bulletin No. X71-4 reports on the many improvements P&H has made in the last several years.

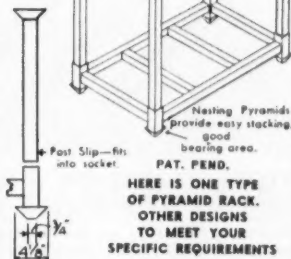
Circle No. 246 on Reader Service Card



THE FASTEST, EASIEST METHOD OF
STORING MATERIALS . . . to the roof-top, if necessary!

The exclusive *self-aligning* feature of the Paltier Pyramid Rack allows it to stack quickly and easily. All-steel unit construction insures safety and long life.

DESIGNED TO
MEET YOUR PARTICULAR
REQUIREMENTS



All Paltier Pyramid Racks are designed and manufactured to meet *your* particular requirement regarding load capacity, dimensions, special framing and decking. All posts slip-fit into sockets . . . are easily removable and can be replaced with posts of other lengths.

NESTING PYRAMIDS
available for YOUR RACKS

To enable present users of unit racks to use this time and money-saving feature, plus a *safe* and sure method of tiering racks, Paltier will furnish the self-aligning, nesting pyramids at reasonable prices for welding to your equipment. Pyramids fit any size post up to $3\frac{1}{2}$ inches square.

BE SURE OF THESE SAVINGS TOMORROW—
BY WRITING FOR DETAILED INFORMATION TODAY!

THE PALTIER CORPORATION
1701 Kentucky Street, Michigan City, Indiana
DISTRIBUTORS IN PRINCIPAL CITIES

Circle No. 63 on Reader Service Card for more information

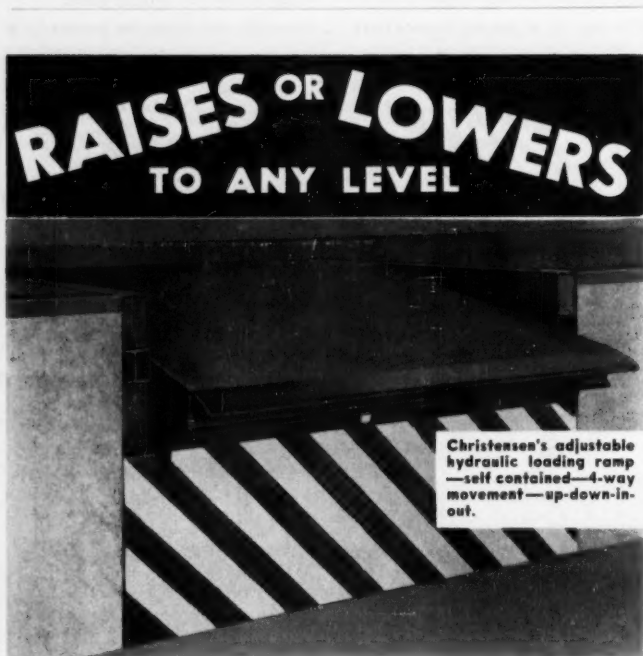
Whats New in Equipment .

(Continued from page 40)

ator has quick control over maneuvers; (2) Vertical handle operation which saves 6 to 9 inches of aisle space because the handle does not have to be extended down from the full back position to disengage the brake and make

controls operable; (3) Electric "deadman" type brakes, by which the operator simply releases hand pressure on the handle "trigger" to get instant, cushioned braking—with the handle in any position; and (4) Timed acceleration whereby speed picks up instantly and smoothly when the operator presses the handle "trigger". The truck now comes in either pallet or platform types.

Circle No. 175 on Reader Service Card

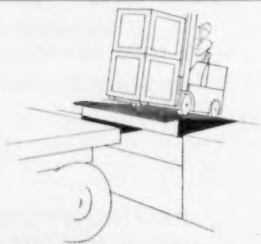


Christensen's adjustable hydraulic loading ramp—self contained—4-way movement—up-down-in-out.

STOPS HOLDUP ON TRAFFIC FLOW . . .

How many times have you been stymied by this problem? Floor levels of different heights. Christensen's help you solve these costly hold-ups with permanent hydraulically operated built-in ramps which adjust to desired levels permitting loading directly into trucks, trailers or freight cars.

To meet varying requirements, Christensen offer a complete line of permanent loading ramps and portable light weight plates. There is a size and type to meet your needs and budget.



There's a Christensen unit for every application, regardless of your dock-to-truck problem.

For Further Information Please Call . . .

Wm. Christensen Co., Inc.

DEPT. 75 • YORK • PENNSYLVANIA

400 SOUTH SHERMAN ST.

YORK, PENNSYLVANIA

Circle No. 83 on Reader Service Card for more information

Mobile Cargo Crane

—Coles Cranes, Inc.

A crane designed to combine the advantages of the mobility, flexibility and maneuverability of pneumatic tired mobile cranes with the long out reach, consider-



able height and visibility essential for working hold of ocean-going ships has been introduced by Coles Cranes Inc. It is electrically operated, but generates its own power by means of a diesel or gas engine.

Circle No. 176 on Reader Service Card

One-Man Tailgate Loader

—Ven Corp.

With a capacity of 600 lbs. this improved version is the successor to Venco's original one-man load-



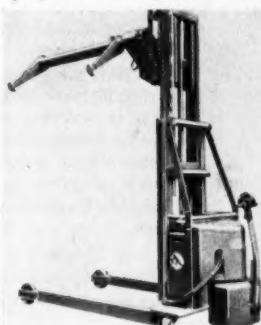
er for 1/2, 3/4 and 1 ton trucks. A completely automatic load brake is a feature of the new model.

Circle No. 177 on Reader Service Card

Truck to Lift, Stack Cylinders

—Lewis-Shepard Products, Inc.

Designed for side discharge, the Lewis-Shepard Electric Jack Stacker truck will lift and stack any cylindrical object with a core



hole. Capacity of the illustrated model is 1100 lbs. Manufacturers say it will operate in aisles 38½ in. wide and, with the adjustable carriage boom, can handle rolls 53 to 88 in. long. Lowered height to the lifting hooks is 8 in. Lifting height is 8 ft. 6 in. Side motion of the lifting arms, 31 in. on either side of center line, is controlled from the handle head. Celoron stabilizing gasters give additional support.

Circle No. 178 on Reader Service Card

Conveyor Safety Gate

—Metzgar Company

An "In-Line" Conveyor Gate produced by Metzgar Co. has the counter-weight assembly well within the outside frame of the conveyor. Space in the aisles on each side of the conveyor line is said to be gained by this construction, and accident potential removed. The gate is available in opening lengths of 5 ft. or less and widths of 11½, 15 and 18 in., in both wheel and roller types for use with standard width conveyor lines.

Circle No. 179 on Reader Service Card

Variable Speed Drive

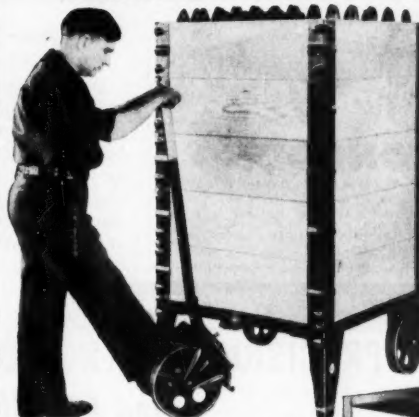
—Dodge Manufacturing Corp.

Incorporating the Taper-Lock principle, a new, compact, variable speed drive by Dodge Manufacturing Corp. is designed to cut down-time on speed changes and increase production. It comprises four units—variable pitch motor sheave, a set of wide range belts,

companion sheave, and a slide motor base. The Taper-Lock is used in the bushings for both sheaves. The variable sheave assembly locks on the motor shaft as a unit with the turn of a screw. Pitch diameter is changed easily and positively by means of a one point adjustment—the single adjusting screw may be located at either end of the sheave although normally the sheave is factory assembled with the adjusting point

on the motor side. Dodge Sealed-Life belts have the "R" section, with deep walls which are said to help insure long life. Transverse ribs provide lateral rigidity. Belts are oil-proof, heat-resistant and static conducting. The companion sheave in the drive is factory-balanced, of simple modern design, and, for safety, has no projecting parts. In the rare cases where a change in the companion sheave is necessary, the

THE TURNER SYSTEM OF MATERIALS HANDLING ELIMINATES COSTLY WAITING TIME

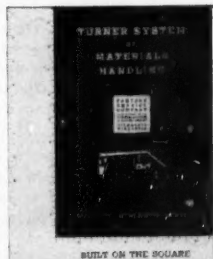


All Turner units fit on the Transport which is moved by hand jimmy, lift truck, crane or tractor.



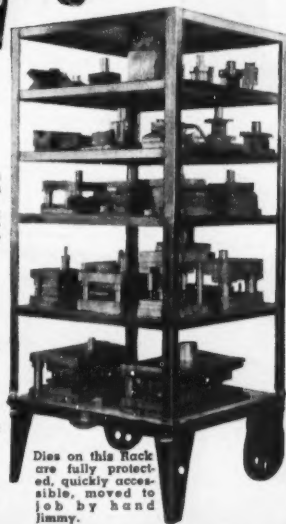
Rugged 8-Way Stacking Pallets

Turner System Pallets can be picked up from any side or angle, stacked with other units, last for years.



Write at once for this FREE BOOK on the TURNER SYSTEM.

- Pallets
- Transports
- Die Racks
- Shelf Racks
- Super-Structures



Dies on this Rack are fully protected, quickly accessible, moved to job by hand jimmy.

FACTORY SERVICE COMPANY
4607 N. TWENTY-FIRST STREET MILWAUKEE 9, WISCONSIN

Circle No. 60 on Reader Service Card for more information

Circle No. 87 on Reader Service Card for more information

Moving or Storing is Rapid, Convenient and Inexpensive with IRONBOUND SEMI-LIVE SKID PLATFORMS



Ruggedly built with capacities up to 2500 lbs. These units are quickly made mobile with the use of low cost lift jacks . . . One of the methods that Ironbound engineers use to increase production and conserve space at low cost.



SEMI-LIVE SKID WITH BOX TOP

. . . permanently attached or removable. Also available with many other superstructures to "Short-Haul" your products thru production or into storage. Useful in hundreds of spots in every plant.

THE IRONBOUND "SAFETY-SKID" WITH ROUND CORNERS

Ironbound construction assures long hard use with complete safety to product and operator. Still the time proven method for handling of materials efficiently and economically.



IRONBOUND

BOX & LUMBER COMPANY

Materials Handling Division

38 HOFFMAN PLACE • HILLSIDE, N. J.

MANUFACTURERS OF QUALITY BUILT SKIDS, SEMI-LIVE SKIDS, FLOOR TRUCKS, ROLL TRUCKS, DOLLIES AND PRY BARS

change can be made quickly and easily. The all-steel



slide motor base, through a turn of one screw, permits changes in center distances to preserve proper belt tension as the variable pitch sheave is adjusted for different speeds. The base is compact, of flush design, and available in a full range of sizes for NEMA frame motors.

Circle No. 180 on Reader Service Card for more information

Heavy Duty Pyramid Rack

—The Paltier Corporation

An all-steel unit rack designed for heavy duty storage, tiering or even shipping is the latest release of Paltier Corp. Provided in load capacities said to be unlimited, the racks are intended for such items as steel parts, coils, motors, and tile flooring. Self-aligning nesting cones are provided for stacking. Slip-fit square tubular vertical supports come in various lengths with special framing to suit indi-

PROVING COLES CRANES WORTH AGAIN!

"PRECISION CONTROL, CANTILEVER BOOM and ECONOMY with SAFETY..."

are why we like BOTH our COLES CRANES!"



AGAIN: Conclusive proof—from a materials handling expert—that world-renowned, ONE-MAN COLES CRANES operate with PRECISION CONTROL, POWER, ENDURANCE—and at less cost, Too. In cramped yards, thru low overheads, over rough terrain—whatever the conditions—the rugged, highly refined COLES CRANES get their load to its destination faster, easier, safer . . . almost without human effort!

Compare these features: Safe-load Indicator, Finger-tip controls, Full 360° Swing, Reversible Steering, Cantilever Boom—and many more unique "EXTRAS." Over 70 years of engineering leadership make a difference!

Capacities 1½ to 23 Tons. Write for details and also name of nearest dealer.

COLES CRANES, Inc.

Box 942
JOLIET, ILL.



Circle No. 86 on Reader Service Card for more information

vidual requirements. The manufacturer says there are no dimensional load restrictions.

Circle No. 181 on Reader Service Card for more information

Slip-Proof Grating

—Bustin Firm-Grip Grating Corp.

A new and patented $\frac{1}{8}$ -in. stock grating intended to prevent walking hazards due to grease, oil or water is produced by Bustin Firm-Grip Grating Corp. The manufacturer cites laboratory tests that proved the grating slip-proof even after it had been submerged in chassis grease and tilted to a 15-deg. angle. It has serrated edges to provide slip protection, but is said to be still comfortable to walk and stand on. Suggested installations are for places where excessive oil, grease, water or icy conditions are likely to make walking hazardous, and where drainage and sanitation are necessary.

Circle No. 182 on Reader Service Card for more information

Gravity Wheel & Roller Conveyors—A. B. Farquhar Co.

The addition of a complete line of gravity roller and wheel conveyors to its present line of power-driven conveyors has been announced by the A. B. Farquhar Co. Named the "Roll-Free" Gravity Conveyors, the wheels and rollers are treated to impregnate bearings and contact surfaces with a lasting, efficient lubricant. It is further claimed that this lubricant seals every metal surface against abrasion.

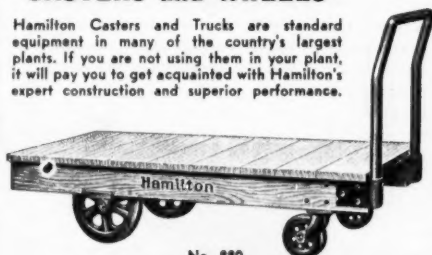
Hamilton INDUSTRIAL TRUCKS

There's no substitute for experience and skill. Hamilton Floor Trucks are dependably good because the men in our organization have been building floor trucks for 45 years.

Hundreds of styles and sizes to choose from—platform trucks, two-wheel hand trucks, box trucks, stake trucks, shelf trucks, wagon trucks, dollies, barrel skids, lift truck system, etc. Special trucks, of wood or steel, designed and built to meet individual requirements.

CASTERS and WHEELS

Hamilton Casters and Trucks are standard equipment in many of the country's largest plants. If you are not using them in your plant, it will pay you to get acquainted with Hamilton's expert construction and superior performance.



No. 880

Write for Catalog Today

The Hamilton Caster & Mfg. Co.

1672 Dixie Highway

Hamilton, Ohio

Circle No. 88 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

EASY DOES IT!



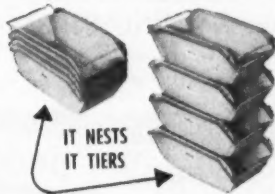
Ye old-time shop box jams and sticks! To pry one from the stack, A worker has to tug and pull—And darn near sprain his back!

But in the modern factory, They use the **NESTIER Plan!** Each box lifts out with greatest ease, SAVES TIME—THE BOX—THE MAN!



LET'S TALK ABOUT EASE OF HANDLING!

We've told you about the major advantages of the Nestier—how units nest when empty to save space—how they tier when filled, with contents of all units clearly visible and easily accessible...



We've also told you how easily Nestiers can be adapted to any conveyor system—how they are used for stockroom storage—how they speed the flow of materials and keep production moving.

But let's not overlook this important point:

Nestiers Do Not Jam or Stick!

Unlike old-fashioned "shop boxes" Nestiers do not jam or stick when nested. Each box rests on the balls of the box beneath it, preventing complete telescoping. One or more Nestiers can be lifted out, quickly and easily, from a stack—saving wear and tear on boxes, eliminating costly repairs and replacements.

This is just one of the many exclusive features that make the Nestier System a "must" for efficient, economical materials handling.

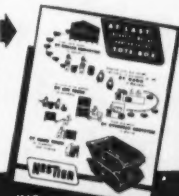
Two standard sizes in heavy gauge steel, baked enamel finish or unpainted, oiled. Also in stainless, aluminum, galvanized or zinc plated expanded metal. All units are interchangeable.

WRITE FOR THIS BULLETIN NOW!

This important booklet describes all phases of the Nestier System. Our service includes complete engineering advice to systematize small parts handling in your plant.




THE CHAS. WM. DOEPKE MFG. CO., INC.
ROSSMOYNE, O. METAL SPECIALTIES DIV.



Circle No. 89 on Reader Service Card for more information


Circle No. 84 on Reader Service Card for more information



GET A HEAVY DUTY CHAIN HOIST

**For your tough
lifting jobs**

It's much easier on your men and equipment — safer, too. Besides, the Peerless Model "C" Hoist is dependably rugged — built to withstand the punishing strain of every-day lifting jobs. Entire load is carried by precision cut, heat-treated alloy steel spur gears. The Peerless "C" is easy to operate too, because load wheel revolves on ball bearings. These features are only a few of many designed to make your hoisting jobs easier, to move materials faster. You save time, money and effort when you use a Peerless Model "C" Hoist. Available from 1/4 to 60 ton capacities. Your Distributor carries in stock the more widely used Harrington Hoist Products for immediate delivery. Look in your CLASSIFIED TELEPHONE DIRECTORY under HOISTS for the nearest Harrington Distributor, or write for Bulletin P-11



THE HARRINGTON COMPANY
1438 W. Callowhill St., Phila. 30, Pa.
HOIST MANUFACTURERS SINCE 1876

Wrapping Bench to Car without HANDS



**OLSON
CONVEYORS**

for
**EVERY
PURPOSE**

Spiral Chute to Belt Conveyor to Gravity Roller . . . A triple play that takes packages from wrapping bench to freight car without hands.

Just one of thousands of places where OLSON Conveyors, engineered for the application, get the job done FAST, with tremendous savings.

**Send for
Catalog
and case
histories.**

SAMUEL OLSON MFG. CO., INC.
2426 Bloomingdale Ave., Chicago 47, Ill.

Send OLSON Conveyor Catalog and case histories.

Individual _____ Firm _____

Street _____

City _____ Zone _____ State _____

Circle No. 90 on Reader Service Card for more information
128

Heavy-Duty Power Output—Turner Machinery Co.

Three new models of multi-speed power units for heavier horse-power applications are on the market as a result of over two years of design, engineering and test operations. Power ratings up to 60 H.P. are available and are said to be ideal wherever it is necessary to vary the turning speed of electrically driven equipment or machinery.

Circle No. 183 on Reader Service Card for more information

Sweeper Side Brush

—Little Giant Products, Inc.

Also known as a gutter brush attachment, a new side brush for the Little Giant "Yard Bird" fork truck sweeper cleans right up to walls, curbs and gutters. The side brush is engaged or disengaged by a clutch located on the drive shaft. A key lock holds the brush off the floor when its use is not required. The key lock is pushed in to drop the brush

DON'T
BE half SAFE *
USE "George"
AND BE
TOTALLY SAFE



"George," the almost automatic TOTE BOX ROLLER TRUCK . . . with upper loading rollers and lower traction rollers . . . is the safest truck for metal working plants.

You load boxes by safe handle leverage . . . not by dangerous lifting. Load held safely . . . no slide-off danger. Brilliant point color prevents tripping. Low, safe rollers . . . no skidding wheels. All-metal, long life, low cost. Buy "George", by George, and you've made a good investment.

* With apologies to you-know-who

3RG52

LET "George" DO IT



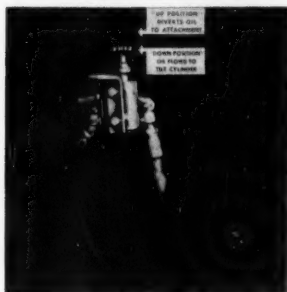
Write for free Folder L
ROLOCK Incorporated
Fairfield, Connecticut

Circle No. 91 on Reader Service Card for more information
NOVEMBER, 1952 • FLOW

into sweeping position. Two standard V-belts transmit power to the brush, which is made of coarse Tampico fiber with steel wire interwoven into the outside row of bristles. Twenty four inches in diameter at the floor line, it tapers to 10 in. at its wood base. It is 8 in. high. Current model Yard Birds are shipped with or without the side brush, but they are designed so that the attachment can be mounted later if desired.

Circle No. 184 on Reader Service Card for more information

A newly-designed diverter valve announced by the Industrial Truck Division of Clark Equipment



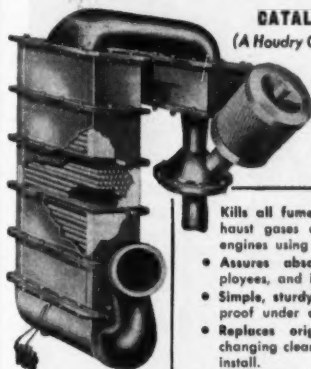
Co., is said to make possible economical installation in the field of special hydraulic attachments. By means of the valve, the truck's hydraulic system for tilting the upright can be utilized to operate the special hydraulic attachment, using the standard tilt lever as the means of control. When the diverter valve plunger is in the "up" position, oil is diverted to the attachment.

Circle No. 93 on Reader Service Card for more information

DEATH TO CARBON MONOXIDE, EXHAUST FUMES AND ODORS

CATALYTIC EXHAUST
(A Houdry Catalyst Development)

Reduces CO
to a safe level



Kills all fumes and odors from exhaust gases of internal combustion engines using white gasoline.

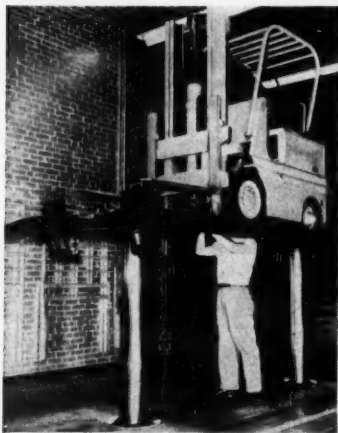
- Assures absolute safety for employees, and increases efficiency.
- Simple, sturdy construction, rupture-proof under explosion.
- Replaces original muffler without changing clearances . . . and easy to install.
- Gives 2,000-2,500 trouble-free hours of operation, after which catalyst is quickly replaceable . . . and at low cost.
- Tested and listed by Underwriters Laboratories, Inc., and used in many of the nation's leading industrial plants.

OXY-CATALYST, INC.
Wayne, Pa.

Air Pollution Control
Power and Energy
Waste Heat Recovery

WRITE FOR FULL DETAILS AND SPECIFICATIONS
and mention this magazine

This Globe Lift makes it easy to inspect and service industrial trucks



More and more users of industrial trucks find they save valuable time and cut costs by doing their own preventive maintenance, inspection, and repair work. A Globe Industrial Truck Service Lift means further substantial savings. It raises electric or gasoline-driven trucks to give full accessibility to underneath parts. Inspection, servicing, and lubrication is speeded. The danger and waste of labor involved in using makeshift devices is eliminated.

Globe Industrial Truck Service Lifts are available in either single or 2-post models. A removable bridge plate spans the runways to permit handling 3-wheel trucks on the single post types.



GIVE YOUR BUSINESS A LIFT!

If you have a lifting problem, you have a problem made to order for a Globe OILIFT! Hydraulic power helps you make the most of your manpower—speeds production, saves you money, helps eliminate damage to materials and injury to workers. Write today for valuable information on Self-Leveling Ramps, Machine Feeding Lifts, Loading Dock Lifts, Ramp Eliminators, Production Lifts, etc. Ask for Bulletin F-419.

GLOBE

THE BEST LIFT

GLOBE HOIST COMPANY • 1000 E. Mermel Lane, Phila. 18, Pa.

(Factories at Des Moines, Iowa and Philadelphia, Pa.)

Circle No. 92 on Reader Service Card for more information



VERSAVEYOR

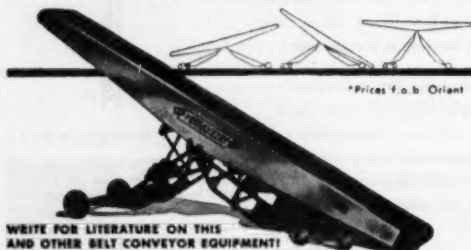
LOW-PRICED*. A 13-ft. unit without either undercarriage \$343; add \$80 for wheel undercarriage, \$93 for caster undercarriage. (See photo below.)

LIGHT-WEIGHT. Whether it's a 13, 15, 17 or 19-ft. length, the Versaveyor is easy to handle 'most anywhere. For example, the 13-ft. unit without undercarriages weighs only 150 lbs.

EASY-TO-HANDLE. From a horizontal low of 22 in. to a height at either end of 9 to 14 ft. (45-degree angle), the Versaveyor is safe and stable. Unit load, 150 lbs.; distributed load, 300 lbs.

WELL-BUILT. Box-type frame; heat-treated aluminum alloy.

MANY USES. Out of box cars to gravity conveyors. Into trucks. Up to second floors. Flat on stairways. Will pass through 30-in.-wide door with undercarriages attached. Has 12-in.-wide belt.



WRITE FOR LITERATURE ON THIS AND OTHER BELT CONVEYOR EQUIPMENT!

BELT THE BELT CORPORATION
7486 STAHL ROAD ORIENT, OHIO

Circle No. 94 on Reader Service Card for more information
130

When the plunger is in the "down" position, oil flows to the tilt cylinders, and the truck operator has normal control of tilting. Simultaneous operation of the attachment and tilt cylinders is impossible. The new valve is said to offer advantages in situations where installation of an auxiliary valve for a hydraulic device would ordinarily be too costly or time-consuming; or in the case of old models where major modification would be necessary, making field installation impossible.

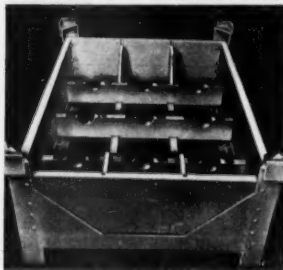
Circle No. 185 on Reader Service Card for more information

Protection for Crankshafts

—Karl A. Herman Co.

A Shaft Safety Box being produced by Karl Herman Co. provides protection for crankshafts or similar shapes with

accurately machined surfaces. The box is built to customer's specifications and, no matter what size, can be stacked and handled by fork lift truck or equipped with crane lugs. All boxes have steel frames, steel braces, and wood sides and bottoms.



Save time! Prevent accidents!

LIFT AND DUMP MECHANICALLY

BAGS
BARRELS
DRUMS
BOXES

REDUCE HANDLING COSTS with a Cesco Dumper. It handles up to 100 loads per hour; has a lifting cap. ranging from 100 to 1500 lbs. Both single- and multi-purpose portable models are built in standard dumping heights from 5 to 12 ft. Stationary models up to 16 ft. dumping heights. Push button controlled. Write for catalog.

ESSEX CONVEYOR, INC.

101 Colden Street • Newark, New Jersey

COLSON EQUIPMENT & SUPPLY CO.

1317 Willow Street • Los Angeles 13, California



Circle No. 95 on Reader Service Card for more information
NOVEMBER, 1952 • FLOW

In the one shown, 2-in. hardwood plank forms the sides, bottom and cross rails. Bearing points on these are faced with brass strips for long wear.

Circle No. 186 on Reader Service Card for more information

Wire Handling Baskets

—Jaxon Wire Products Company

Two new handling baskets by Jaxon Wire, for handling precision parts in production, are the Pinrack (top photo) and Sectional Tray.



The Pinrack has 231 pins on 1-in. centers. Inside dimensions are 12 in. wide, 22 long and 2¾ deep. Weight is 10 lbs. The Sectional Tray, with inside dimensions of 13¾ in. width, 22¾ length, and 4½ depth, has 60 sections, weighs 16 lbs., and has a ¾ in. mesh bottom.

The company also manufactures the Pour-Spout baskets, which provide accessibility of contents when stacked. Inside dimensions of one are: width 12 in., length 22, depth

NEW



MODEL-H NOLAN 1-Man Car Door Opener

New safety and efficiency features now make the Nolan 1-Man Car Door Opener a more necessary labor-saving, money-saving help than ever before!

NEW improved balance assures automatic unlocking of pawl for chain stripping during door opening or closing operation.



NEW safety hook swings 180 degrees; locks positively in place before pulling; cannot become detached.



NEW safety hook with locking latch prevents accidental release when pulling.

Opens Doors in 20 Seconds or Less!

No gangs needed. No mangled limbs or loss of life. A few quick pulls on anchor chain gets any door open in a jiffy. The NOLAN saves its low initial cost in first hour of operation.

FREE LITERATURE
Order now or more NOLAN Model-H Car Door Openers now. Catalog on request.

\$29.50
F.O.B. BOWENSTON, ILL.

THE NOLAN COMPANY
118 Pennsylvania Street • BOWENSTON, ILL.

Circle No. 96 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

Invests \$150⁰⁰ Saves \$2100⁰⁰

with this remarkable PARKER floor sweeper

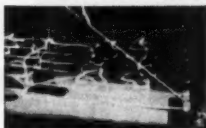


Report from Plant X indicates way you can make substantial savings on YOUR floors

"Comparative studies on 71,256 sq. ft. of storage and shipping space yield clean-up times of eight hours against sixteen hours by the former method. In areas formerly swept by the pushbroom method the Parker sweeper yields still greater savings, some as high as 76%. An estimated \$2,100 per year after taxes will be saved."

A Parker sweeper saves money, saves manpower in any size plant from large factory to small garage. Sweeps all type floors. Collects and sweeps in one operation. Easy to empty. Write for full details.

HERE'S WHY YOU SAVE FROM \$10 TO \$50 A WEEK



OLD PUSHBROOM METHOD

A flashlight mounted on a pushbroom vividly describes what happens when a workman uses a pushbroom. Time exposure shows change of direction. And the dirt must still be picked up.



PARKER SWEEPER METHOD

Continuous lines of light indicate continuous sweeping. Result: many more times the floor space swept in an hour's time. Furthermore, the dirt has been collected at the same time.

PARKER

INDUSTRIAL FLOOR SWEEPERS



Parker Sweeper Co.

16 Bechtie Ave., Springfield, Ohio

Motorized Model Parker Sweeper with 1 h.p. 4 cycle engine available for extra large, unobstructed areas.

Circle No. 97 on Reader Service Card for more information

**want to show your
management some
BIG SAVINGS?
Install *Hapman*
TUBULAR CONVEYORS**



**FOR METAL CHIP AND
DUST REMOVAL ON
3 TYPES OF
INSTALLATIONS:**

**DEPARTMENT OR PLANT-WIDE
CHIP-CONVEYING SYSTEMS...**

Here's the latest of many complete Hapman chip-handling systems installed in major automotive plants. In all cases, they've *proved* their ability to pay big dividends fast.



**AS ORIGINAL COMPONENTS ON
NEW MACHINES AND EQUIPMENT...**

You can get low-cost, automatic chip, dust or sludge removal on new machines of many types by specifying Hapman Conveyors as original equipment. We co-operate with the tool builder.



**ADDED TO EXISTING MACHINES
OF MANY TYPES...**

You can also show your Management important, quick-return savings by installing Hapman Conveyors on existing equipment such as these profile milling machines — or on broaching machines, grinders, drills, quench tanks, etc. You can *prove* the savings —



INVESTIGATE NOW — WRITE FOR BULLETIN F-1152



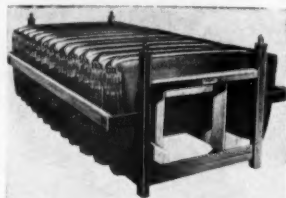
Circle No. 98 on Reader Service Card for more information
132

5, weight 13 lbs., and mesh either $\frac{1}{4}$ or $\frac{3}{8}$ in. opening. Another goes (I.D.) 12 in. wide, $15\frac{1}{4}$ long, 6 in. deep, and 10 lbs. All baskets have plated finish and a weight tolerance of plus or minus one ounce for weight counting. They are intended for handling, washing and degreasing, shipping and storing parts.

Circle No. 187 on Reader Service Card for more information

Stacking Racks With Side Rails
—Equipment Manufacturing, Inc.

Bayonet cut-outs in the uprights now make it possible to attach side rails to the standard portable stacking type stock racks produced by Equipment Manufacturing. The feature is intended to assure better load balance and make possible safer movement and stacking of bulky



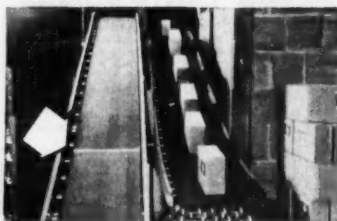
and overhanging loads in production, storage and shipping. Both flush and extended type rails are available. Rails are of hardwood with formed metal fittings. Attachment involves no bolts or loose parts; rails can be locked in position or disengaged for loading and unloading by simply lifting and tipping.

Circle No. 188 on Reader Service Card for more information

ALLIGATOR



CONVEYOR BELT LACING



**Every
Tooth
A Vise***

**In Long Continuous Lengths
for Conveyor Belts**

- ★ Excellent for Package Conveyors, Portable Loaders, Trenching and Ditching Machines, etc.
- ★ In canneries where corrosion or rust is a problem specify Alligator made of Stainless or Monel.
- ★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
- ★ Separable and smooth on both sides.
- ★ 12 sizes. For belts from 1/16" to 5/8" thick — and any width.

**Order from Your Supply House. Ask for Bulletin A-60.
FLEXIBLE STEEL LACING CO. 4782 Lexington St., Chicago 44, Ill.**

JUST A HAMMER TO APPLY IT

Circle No. 99 on Reader Service Card for more information
NOVEMBER, 1952 • FLOW

All-Steel Welded Trailer

—The Mercury Manufacturing Company

Designed for dock and yard service, a 20,000-lb. capacity trailer by Mercury Mfg. Co. is designated



Model A-614-10B. Of all-steel, welded construction, it has a deck size 7 ft. wide by 14 long, but both dimensions are subject to

variation to meet user's requirements. Deck height is 22½ in. Construction, as shown, consists of a 3/16-in., non-skid type steel deck, supported on multiple longitudinal sills, dished up at the edges to the top of the tee frame, at which point it is welded to the frame. A flush type steel deck, either smooth or non-skid, or flush hardwood deck, are optional. Cast steel wheels, Timkin bearing mounted, are on 2¾-in. diameter axles and fitted with 15x8 in. pressed-on solid rubber tires. Attached to the fifth wheel turntable assembly, which is of large area plate type, is a long loop-handle drawbar, which is said to provide easy steering and high maneuverability. The rear of the trailer is fitted with a safety "C" type coupler. There are four stake pockets on each side and two on each end. The number of pockets and their positions are also variable to meet a user's requirements.

Circle No. 189 on Reader Service Card for more information



M·E·T·Z·G·A·R

LIVE ROLLER
CONVEYORS

HORIZONTAL POWER . . .

. . . where Belt Surface Conveyors can't stand abuse of heavy metals, sharp corners or rough edges, Metzgar "Live Roller" units provide an all-metal, powered bearing surface. May be used as power booster in gravity line. Work can be slowed or held without stopping machine.

Furnished portable or permanent mounted. Choice of one to five rollers per foot. Lengths to suit. Ball bearing throughout. Gearmotor AC or DC drive.

ASK FOR FOLDER NO. 1249

METZGAR CO.

MGERS. OF WHEEL & ROLLER GRAVITY &
LIVE ROLLER CONVEYORS • POWER BELT
CONVEYORS • SWITCHES • ACCESSORIES
• REEL BOLRIES & END-WOOD WHEELS.



423 Douglas N.W.

GRAND RAPIDS 4, MICH.

Circle No. 100 on Reader Service Card for more information
FLOW • NOVEMBER, 1952



Well Stacked!

Let our rack specialists lay out your new installation for maximum efficiency or study your present operation for possible improvements.

PROPER STACKING OF GOODS SAVES SPACE AND LABOR

E.M.I. engineers, fabricates and installs complete rack systems. Our designs offer the greatest in strength and safety, incorporating our square welded steel tubing and simplified assembly methods.

- PALLET RACKS
- PORTABLE STOCK RACKS
- COIL RACKS
- SPECIAL RACKS
FOR ALL APPLICATIONS

Write for our catalog

**EQUIPMENT
MFG. INC.**

21552 HOOVER ROAD, DETROIT 5, MICHIGAN

Circle No. 85 on Reader Service Card for more information

Circle No. 102 on Reader Service Card for more information

TRAFFIC NEVER STOPS

when you repair
your floors with

PERMA^{Mix}

FOR PATCHING IN TEMPERATURES
FROM 10° TO 100° ABOVE ZERO

EASY STEPS TO FOLLOW:

- Clean area to be patched. Apply primer supplied in drum. Prime about 2" outside of patch.
- Fill area with PERMAMIX, just as it comes from the package, allowing sufficient material for slight crown.
- Tamp solidly in place and resume traffic immediately.

No mixing, waiting or production delays when you repair your floors the easy, fast PERMAMIX way. Comes in handy, durable 50 lb. net weight drums.



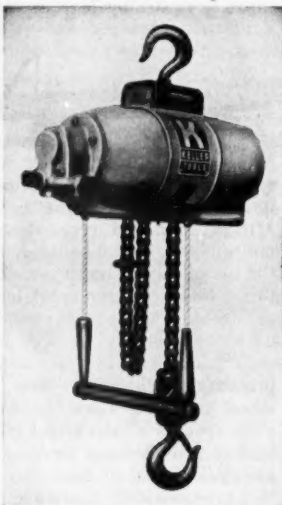
ALSO AVAILABLE! The new PERMAMIX-C for patching in low temperatures from 5° above zero to -30° below...using the same 3 easy steps.

PERMAMIX CORPORATION
226 N. LaSalle St. • Chicago 1, Ill.



Newly Designed Pneumatic Hoists —Keller Tool Company

Improvements claimed for the latest air hoists produced by Keller Tool follow: (1) Safety hooks now standard equipment for the load hook and optional for suspension hook; (2) Lubrication system improved; (3) Brake redesigned for smoother, more positive action; (4) Extra bearing added to the motor drive shaft; (5) Control lever made heavier for rough usage; (6) Ring gears hardened for longer wear; (7) Pendant controls available, at extra cost, for handling unwieldy loads; and (8) Accessories newly offered include chain baskets, hose trolleys, I-beam hoist trolleys.

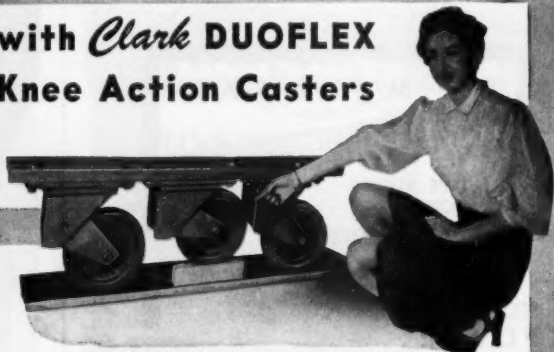


Circle No. 190 on Reader Service Card for more information

Move it

**SMOOTHER
SAFER
FASTER
EASIER**

with *Clark* **DUOFLEX
Knee Action Casters**



**HIGH DEFLECTION — LOW DYNAMICS —
LESS BOUNCING.** Damping automatically
proportional to load and shock

Costs go down, efficiency goes up, when you use Clark Duoflex Knee Action Casters. They give you **HIGH DEFLECTION** without bouncing. Deflection always more than $\frac{1}{3}$ and as high as $\frac{1}{2}$ of wheel radius! Clark Casters pay for themselves over and over again—in lower labor costs, faster handling, longer equipment life, savings in maintenance and replacements, and decreased product damage.

Consider these Duoflex Advantages

- ★ Push 2 to 4 times easier than conventional casters
- ★ Fully enclosed springs
- ★ One-piece knee action
- ★ Lifetime lubrication of knee action
- ★ Shock resisting; shock absorbing
- ★ No shimmy; constant wheel-to-floor contact
- ★ Fit any standard wheel

Let us know your caster requirements



ALL STEEL WELDED TRUCK CO.
ROCKFORD, ILLINOIS

Circle No. 103 on Reader Service Card for more information

High-Lift Walkie

—Yale & Towne Manufacturing Company

A new 4,000-lb. capacity, high-lift unit added to the Yale Worksaver line of motorized hand trucks



is designed to transport and stack skid bins or single-face pallets. It will stack at heights up to 120 inches, has side caster wheels for stability and constant floor contact under all operating conditions.

and uses pallet forks instead of conventional forks for minimum overall truck length and the lowered fork height to accommodate single-face pallets.

Circle No. 191 on Reader Service Card for more information

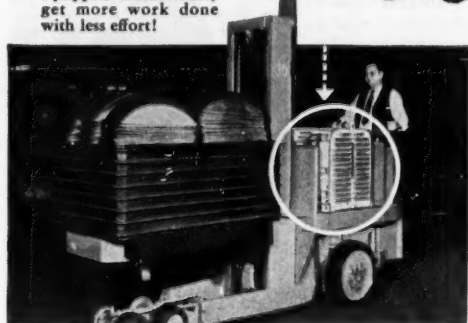
Drum Up-End-er

—Magnesium Products Div.

Weighing only 27 pounds itself, a Drum Up-End-er produced by Magnesium Products Division of National Light Metals & Plastics Company will handle drums weighing up to 850 lbs. And only one man is required to do the job. He inserts the forks

**"My Choice?
READY-POWER DRIVE
...Every Time!"**

Ready-Power Drive is full electric drive featuring simple handling and full control, but with no limit to the hours of operation at peak efficiency. No wonder operators on incentive jobs prefer Ready-Power equipped trucks...they get more work done with less effort!



Remember... Your Truck is No Better Than Its Power!

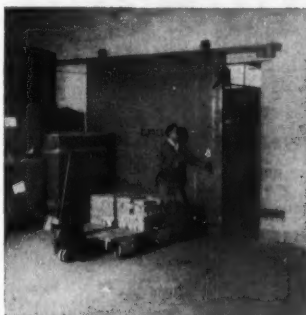
The READY-POWER Co.

2828 Grand River Ave., Detroit 16, Michigan

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Compressing Units; Gas and Diesel Electric Power Units for Industrial Trucks

Circle No. 104 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

HOW ARE YOUR PLANT DOORS OPERATED ?

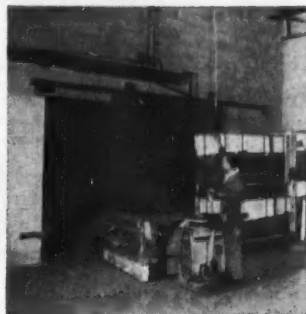


**THE
HARD
AND
EXPENSIVE
MANUAL
WAY**

**THE EASY,
Economical**

STANLEY

WAY



Stanley Magic Door Controls not only make door operation easy and inexpensive, but practically eliminate the "left-open" door that means loss of heat or conditioned air.

Stanley manufactures pull cord and switch controlled door operators that bring their resulting economy within easy reach of any plant. Other types include Magic Eye (photoelectric), Magic Carpet and a variety of combinations that will provide the correct door control system for your requirements. Thousands of industrial installations have proven Stanley Controls to be practical and dependable for years of service.

Stanley Magic Door Controls will operate swinging, sliding or folding doors... existing doors are readily equipped.

The Stanley Magic Door representative will be glad to work with you. Mail the coupon today.

STANLEY *Magic Door* **CONTROLS**

The Stanley Works, Magic Door Division
30111 Lake St., New Britain, Conn.

☐ Send full information on Stanley Magic Door Controls.

☐ Have representative call.

Co. Name _____

My Name _____

Address _____

City _____ State _____

STANLEY TOOLS • STANLEY HARDWARE • STANLEY ELECTRIC TOOLS • STANLEY STEEL STRAPPING • STANLEY STEEL

Circle No. 105 on Reader Service Card for more information

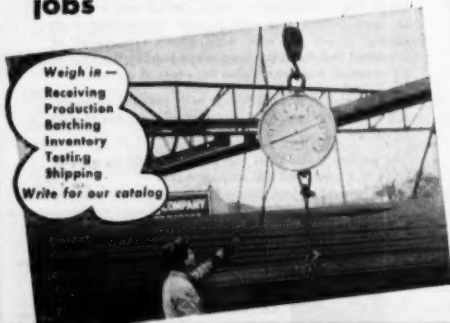
How much do you weigh?

Not you, but your products! Do you weigh in receiving, at production stages, etc. to protect your operation against overcharges, losses, miscalculations? **HYDROSCALE**, the hydraulic crane scale, makes it practical to check whenever and wherever you should, weighs on the spot, eliminates weighing stations and man power and equipment tie-ups.

36 MODELS.
500 to
250,000
LBS.

HYDROSCALE

reduces the
effort and
expense
associated with
routine weighing
jobs



Weigh in —
Receiving
Production
Batching
Inventory
Testing
Shipping
Write for our catalog

HYDROWAY SCALES, INC.

20628 W. 8 Mile Rd., P.O. Box 4754 Detroit 19, Mich.

Circle No. 106 on Reader Service Card for more information

136

of the up-ender beneath a drum, leans back, and then rotates the handle bar to set the drum upright. The unit is of heli-arc welded magnesium, and it can be obtained with wheels or casters for carrying drums.

Circle No. 192 on Reader Service Card for more information

Fork Trucks Gas or Diesel

—Yale & Towne Manufacturing Co.

Either gas or diesel power plants can now be installed in Yale fork lift trucks in capacities from 4,000 to 10,000 lbs.

The company says a recently concluded design standardization program makes it possible to install either type in the same size chassis—that this permits wider flexibility in applications where operating conditions and available fuel indicate a definite preference for one or the other. Illustrated is a Yale 6,000-lb. capacity truck available with either power plant.



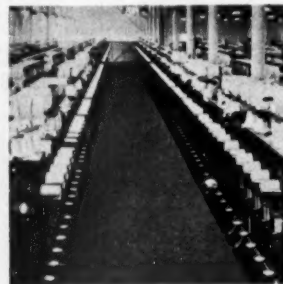
Circle No. 193 on Reader Service Card for more information

Plastic Flooring Compound

—The Monroe Company, Inc.

A quick drying plastic compound for use in repairing and resurfacing wooden floors, now produced by the Monroe Company, is called "Rezilo".

The company says it contains special cohesive resins which bind it firmly to wooden floor surfaces without the use of metal binders, and that its resilience makes it ideal for aisles and work areas where personnel walk and stand as well as for areas subjected to heavy trucking. It is easily applied and can be used immediately after application, providing a smooth, hard surface. It is also recommended for use indoors or outdoors on ramps, trucking aisles, loading docks and warehouse floors. Furnished ready to use without mixing or thinning, Monroe says it does not require troweling and is easily applied by priming, screening and rolling.



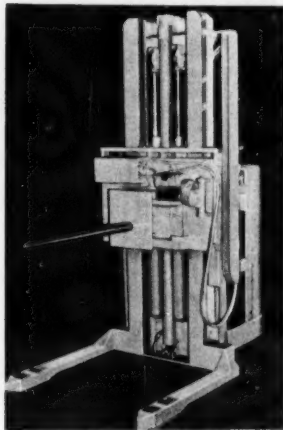
Circle No. 194 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

Side-Shifting Ram

—The Raymond Corporation

As an optional attachment for the straddle-type Raymond Electric Tying Truck, a side-shifting



ram with 6-in. lateral movement may be used for handling rugs, coils of metal, or any material having a center opening. The unit was originally designed for use by the textile industry for handling bolts of cloth. It moves 3 inches to either side of center. This, plus raising and lowering the mast, permits accurate alignment in placing the ram in the center of material. The ram

is being furnished with the standard Raymond Tractor, making a maneuverable unit for use in aisles down to 6 ft. wide. When the mast is raised, the ram has a maximum elevation of 130 inches.

Circle No. 195 on Reader Service Card for more information

Radio Call Box

—Motorola, Inc.

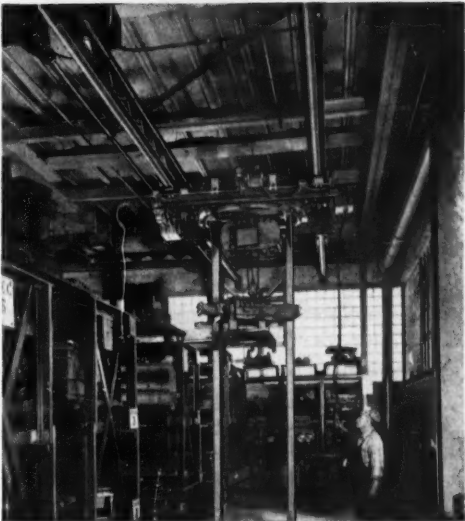
Two of Motorola's products, the Quik-Call selective signaling system and the "Handie-Talkie"



radiophone have been combined to form a Radio Call Box. The system provides a 2-way communication between a central office and selected fixed and mobile outposts, providing voice communications without wire-line interconnections. A "Handie-Talkie" FM Portable Radiophone with Quik-Call facilities is installed in the call box; the

associated base station selective signaling equipment and transmitter-receiver unit are installed at a central office to complete a 2-way system. When the central station operator wishes to communicate with someone in the vicinity of a particular call box, he selects it by transmitting the associated selective signal. A red light on top of the call box pole then attracts attention. A coded call may also be initiated by someone at the box who depresses

60% MORE DIES NOW STORED



ONE MAN NOW CONTROLS DIE STORAGE WITH 60% MORE DIES STORED IN THE SAME FLOOR SPACE

Without extra building, a large Mid-Western manufacturer of internal combustion engines has solved a difficult die storage problem by installing a Louden Monorail System. Capacity of the storage area has been jumped 60%, "housekeeping" efficiency has been increased, while the labor force has been reduced from several men to one-man control.

The "tiering" trolley, operating on a double-girder crane with turntable, permits easy, accurate positioning of dies in assigned bins. Complete push-button operation allows one-man control. The skid method of handling eliminates damage caused by slings or dropping.



FREE BOOK . . . Case histories of successful Monorail applications. Write for "Economic Material Handling" today.

THE LOUDEN MACHINERY COMPANY
7211 S. Court St., Fairfield, Iowa

Louden

OVERHEAD MATERIAL HANDLING
Circle No. 155 on Reader Service Card for more information

the signal button. Reception of the signal causes a lamp on a central station console to light. One lamp is associated with each call box in the system. In an emergency it is possible for someone to work away from the call box and still remain in constant communication with the central station. The portable "Handie-Talkie" unit may be quickly removed from the box and carried about, ready to operate at any time. This unit is supplied by a 117-volt, 60 cycle, AC line while installed in the box, but when it is removed it is automatically switched to its self-contained battery power source. As many as 15 boxes can be controlled by a single console. Sixteen consoles may be connected in parallel. A single headquarters station may thereby control as many as 240 call boxes. The radio call box physically resembles the familiar police-fire call box. It is made of cast aluminum and mounted on a cast iron mast. The light pole is steel and partially surrounds the bulb for protection without impairing its visibility. Equipment is available for operation in the 25-50mc. and 152-174mc. ranges.

Circle No. 196 on Reader Service Card for more information

Self-Unloading Malt Trailer—Baughman Mfg. Co.

Designed for hauling corn grits and malt berries, the trailer illustrated was built by Baughman for the Griesedieck Bros. Brewery Co. in St. Louis. The self-unloading body is all electric-welded, 13-gauge high-tensile alloy steel, with a roof of 16 gauge step tread steel to enable workmen to walk safely. Top edges of the roof are crowned to shed water. Loading hatches, 24x42 in., are of weather resistant construction. A new design is said to eliminate the need for any external braces so that the smooth surface provides ample space for advertising purposes. The body is fully self-unloading, the unloading mechanism consisting of heavy-duty twin augers capable of discharging at the rate of a ton every 2 to 3 minutes. It is powered by a 10 H.P., explosion-proof, electric motor. Discharge ports are equipped with rubberized boots which can be closed with straps to make them water tight. All sprockets and are mounted in grease-sealed hanger bearings.

Circle No. 197 on Reader Service Card for more information



4 MEN ON A RAMP



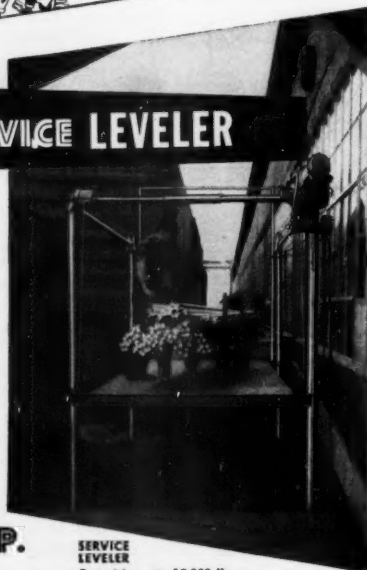
Replaced by 1 and a SERVICE LEVELER

Here's the Story of Actual Manpower Savings by One Progressive Company

When the Canadian Line Materials Co., of Scarboro, Ontario, used a ramp to reach the level of their loading dock, "It was taking three or four men to shove even the smallest load up the ramp." Now, with the Service LEVELER installation pictured at right, only one man is required to move even capacity loads onto the dock. This saves the

wasted time and distraction from other duties of at least two men for every heavy shipment made... a substantial, worth-while manpower savings.

Find out how the LEVELER can cut your costs and save strain on men and mobile equipment in loading trucks and cars, lifting to different floor levels, etc. Write for detailed information today.



See Service for Specials Versatile design permits most Service lifting equipment to be made up as low-cost semi-specials to fit your exact needs. We'll be glad to discuss your requirements.



SERVICE CASTER & TRUCK CORP.

Executive Offices: Albion, Michigan
Plants at Albion, Michigan and Somerville 43, Mass.

See Your Classified Telephone Directory for Nearest Distributor.

Circle No. 107 on Reader Service Card for more information

SERVICE LEVELER
Capacities — to 12,000 lbs.
Lifts — 5' to 17'
Platform sizes — 5' to 12'
Portable and stationary models.

Applicator for Lane Marking Tape

—Minnesota Mining and Manufacturing Co.

Semi-automatic application of tape to mark trucking lanes, aisles, storage areas and safety zones on



the floor is made possible with the "Scotch" lane marking applicator, which is intended for use with "Scotch" plastic film tape No. 471. Formerly two men were needed, and the job required two operations—laying the tape and rolling it firmly into place. With this applicator, one man can do the job, and the tape is applied

and rolled in a single step. One wheel of the unit serves as the guide, the other applies the pressure. Tape, in widths up to 4 in., is fed off a roll-holding attachment, under the pressure wheel, and applied to the floor in a continuous strip.

Circle No. 198 on Reader Service Card for more information

Circle No. 109 on Reader Service Card for more information



FLINTZ

*(FLINT HARDNESS)

HARD RESURFACER FOR CONCRETE

FLINTZ Will bounce a steel ball!

- Will hold a dead, smooth, even surface for life.
- Requires no cutting of underfloor.
- Only preparation is cleaning!

We are currently placing 350 drums in one plant of a world-wide concern. We sell FLINTZ by the drum . . . or will contract the entire job.

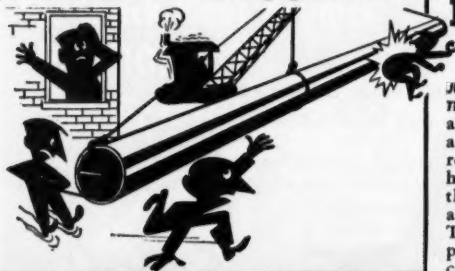


Write today for FLINTZ booklet, "Keep 'Em Rolling" for full details, or address inquiries to:

DURA-TRED CO. FLINTZ DIV.

357 N. CENTRAL PARK BLVD. • CHICAGO 24, ILLINOIS

got a material handling problem?



Let the LULL Hydraulic Traveloader do it for you

JUST ONE MAN BEHIND THE WHEEL OF THIS VERSATILE, JOB-DESIGNED TRAVELOADER . . . your material handling problems are solved! This LULL-designed unit loads, moves, and stacks your lengthy steel pipes and poles in narrow 10 foot aisles. And that's not all! TRAVELOADER hoists its own . . . stacks any material 12 feet from the ground. Why carry long, heavy, problems around? . . . let TRAVELOADER handle them for you. TRAVELOADER does it faster . . . multiplies manpower without increasing your payroll! Models with capacities up to 30,000 pounds.

By adding attachments, TRAVELOADER sling-handles awkward loads, handles heavy cable on spools, etc. Write for brochure AD-30B.

LULL also manufactures the famous SHOVELoader for industrial wheel type tractors, 6,000 and 10,000 pound capacity Four-Wheel-Drive SHOVELoaders, and tilting tower UNIVERSAL Loaders.

LULL Manufacturing Company 346 West 40th St. • Minneapolis 20, Minn.
Export Office: 105 West Fourth St., Cincinnati 2, Ohio • Telex Address: "REPINT"

Circle No. 108 on Reader Service Card for more information

Circle No. 110 on Reader Service Card for more information

DETECTO SCALES

There's a precision-accurate Detecto Scale for your specific weighing and counting need. The Detecto helps increase production, yet assures you maximum accuracy by making slightest weight discrepancies immediately visible.

DETECTO-GRAM HIGH ACCURACY SCALE

Another Detecto-Gram Scale for your precision weighing jobs. Use this Detecto-Gram Super Sensitive Model #74-02 where hair-line accuracy is essential, where an error in the smallest fraction of an ounce may affect your profit.



Write for Catalogue

DETECTO • SCALES • INC.

MAKERS OF FINE SCALES SINCE 1900

543 W. PARK AVENUE • BROOKLYN 5, NEW YORK

SCALE ENGINEERS IN ALL PRINCIPAL CITIES

Modernize BULK HANDLING METHODS

with the

SAUERMAN SCRAPER

The versatility of Sauerman Power Drag Scrapers makes them ideally suited to outdoor or indoor service—on any small or large stockpiling job. One man has finger-tip control over the operation, whether the available space is merely a large bin or acres of ground. Any loose bulk material is quickly stored or reclaimed with considerable savings in manpower and overhead. First cost is reasonable, upkeep simple and use of power moderate.



Sauerman Scraper stores wet phosphate rock in high pile, 300 ft. in radius, alongside drying plant, then reclaims rock as shown in picture after drainage has taken place.

Write for free 32-page catalog that gives Money-saving Ideas on Bulk Handling.

SAUERMAN BROS. Inc.

540 S. CLINTON ST. CHICAGO 7, ILL.

Circle No. 111 on Reader Service Card for more information

140

Low Price, Short-Turning Truck

—Lewis-Shepard Products, Inc.

With their Spacemaster Model "J" electric fork trucks, Lewis-Shepard says, aisle requirements are 5 ft. plus load length.

That means aisles can be set at 8 ft. with a 48-in. load. With rear wheel drive, the steering wheel can turn at right angles to the front wheels, providing the tightest possible turns. The Model "J" in 1000-lb. capacity weighs about 3200 lbs.; the 1500-lb. capacity unit weighs approximately 3500



lbs.; and the 2000-lb. model goes about 2900 lbs. Other features noted are a new G.E. compound-wound traction motor; double reduction gear drive; timed acceleration and anti-plugging interlock; Lewis-Shepard hydraulic components; and full accessibility of all components. There are no under truck adjustments and no grease points because of the sealed lubrication design.

Circle No. 199 on Reader Service Card for more information

Fluid Torque Drive for Crawler

—Unit Crane & Shovel Corporation

Standard installation of Fluid Torque Drive on their 1/2-yard crawler and mobile machines is the latest development

by Unit Crane & Shovel. The manufacturers say it accomplishes smoother load handling by throttle, cushions lifting and digging, and produces greater work output without increasing fuel consumption.

In mobile equipment, the Torque Converter allows smooth break-away performance. The installation retains the engine "straight-in-line" with the main machinery. Its connection to a worm-driven power-take-off by means of a chain coupling eliminates the engine clutch and its lever system. The installation has been field tested in all such applications as a shovel, clamshell and dragline.



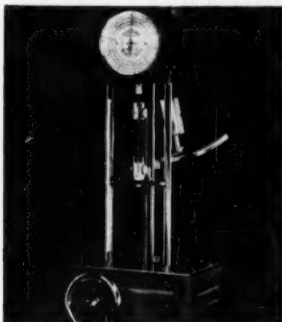
Circle No. 200 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

Hand Operated Load Tester —W. C. Dillon & Company, Inc.

To apply a load to specimens with extremely slow speed and stop it instantly, Dillon has produced its hand operated Multi-Low-Range testing machine. It does not require a variable speed drive or other electrical control. The instrument is available with the following grip clearances: 14 3/4 in., 24, 36 and 48 in. The basic dial is calibrated with four individual scales, as follows:

10 lb. range with 1/2 lb. divisions; 25 lb. range with 1 lb. divisions; 50 lb. range with 2 lb. divisions; and 100 lb. range with 5 lb. divisions. Available is a supplementary dial calibrated for 0-300 lbs. with 1 lb. divisions. Accuracy is guaranteed by the manufacturer to within 0.5 percent to meet ASTM requirements. Mechanism of the tester is a pendulum type. A set of gripping fixtures for flat specimens up to 3/4 in. thick by 1 1/4 in. wide is included with each unit. These can be quickly replaced with a wide variety of other standard grips



For Quick Floor Repairs Use MONROE SWIFT-FLOOR

3 Easy Steps



Plastic compound for patching or resurfacing

That's all there is to it—anyone can apply Swift-Floor. • no drying time—ready for use 60 seconds after application • no mixing—no chipping • withstands heaviest loads, up to 50,000 lbs. • provides "easy pulling" surface for hand trucks—smooth, hard, resilient • will not crack or crumble

A-4011

Please send free information on Monroe SWIFT-FLOOR!

Name _____
Company _____
Street Address _____
City _____ State _____ (F)

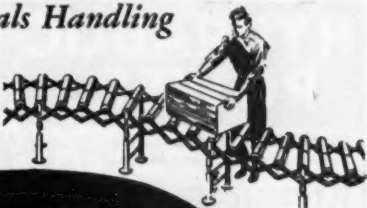
THE MONROE COMPANY, INC.

10703 Quebec Avenue • Cleveland 6, Ohio

Circle No. 112 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

Quick and Convenient Materials Handling

PORTABLE
FLEXIBLE
ECONOMICAL



fmc ACCORDION
GRAVITY
CONVEYOR

Makes
Box
Handling
Easy

 EXTENDS to lengths required, up to a maximum of 9 1/2 feet.	 BENDS to avoid obstructions or to conform to loading requirements.
 CONTRACTS to 3 1/2 feet. Can be turned over and rolled to storage by one man.	 RAISES or LOWERS from a minimum height of 20 1/2 inches to a maximum height of 28 inches. Legs in special lengths available.
 CURVES around corners or posts. Split rollers keep boxes on conveyor without side rails.	 RUGGED construction. Steel Roller staggered wheel or side wheel available. Aluminum type models subject to availability of materials.

fmc CLAMP
TRUCKS

For Quick and
Easy Handling of

Boxes, Crates, Baskets and Lugs

Clamp arms with replaceable jaw tips grip containers firmly. Foot pedal controls opening and closing of clamp arms. Rugged construction, equipped with rubber-tired ball-bearing wheels. Models available for various types of box handling.



FOOD MACHINERY AND CHEMICAL CORPORATION
PACKING EQUIPMENT DIVISION
RIVERSIDE, CALIFORNIA

Circle No. 113 on Reader Service Card for more information

MM 76

141

Circle No. 115 on Reader Service Card for more information

HYDRAULIC POWER...

MAKES it easy for ONE MAN to lift capacity loads to full-gate heights.

BIG JOE Hydraulic Lifts

ARE PREFERRED by industry for today's materials handling operations.

The powerful hydraulic assembly requires minimum effort.

Positive locking 2-wheel brakes afford maximum safety.

Sturdy construction of these low cost units assures many years of service.

Write for Specifications on All Models of BIG JOE Manual and Battery Lifts.



ALL PURPOSE LIFT

\$236.50

Capacity 750 lbs. Lifting Height 54"

BIG JOE MANUFACTURING COMPANY
902 W. JACKSON BLVD. • CHICAGO 7, ILLINOIS

Wherever Used the SCOOT-CRETE

provides a modern and efficient method for all industrial handling jobs, both inside and outside the plant. The SCOOT-CRETE provides exceptional maneuverability with its caster steering, has large heavy-duty tires for traction to move a load over any surface. Models are available with 14-cubic-ft., 16-cubic-ft. and 20-cubic-foot capacity.

Here are two models of the SCOOT-CRETE. At the top is one unit equipped with a box body for handling bulk materials. A flat rack attachment can be interchanged with the box body for handling load units. Optional equipment, automatic clutch and continuous variable speed transmission, permitting speeds up to 15 miles per hour forward, and up to 10 miles per hour in reverse.

Economically priced, demanding minimum maintenance, capable of giving outstanding performance, investigate the SCOOT-CRETE in terms of your own operations.

Write today for complete details. There is no obligation.



Carrying Capacity 3000 lbs.



Carrying Capacity 2000 lbs. Box Capacity, 8 cubic feet.

GETMAN BROTHERS

MANUFACTURING DIVISION

South Haven, Michigan

Office Phone 937

Circle No. 114 on Reader Service Card for more information

142

which are available for wire, paper, wood, adhesive, rubber, springs, etc. Elongation readings are provided with this instrument by means of a special elongation scale and traveling hair line affixed to the moving platen. Tests can be made in tensile, compression, transverse and shear. Maximum readings are easily obtained since the pointer remains at peak load after a specimen breaks. It is reset simply by releasing the pendulum pawls. Overall height of the tester is 64 in.; net weight, 170 lbs. The assembly is finished in polished chromium and hammered gray, baked-on enamel.

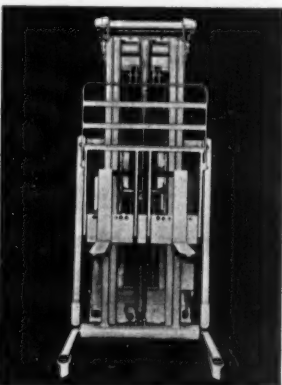
Circle No. 201 on Reader Service Card for more information

Adjustable Base Forks

—The Raymond Corporation

Optional equipment for the Raymond line of straddle-type electric tiering trucks are new adjustable forks to permit the handling

of pallets varying in widths from 32 to 48 inches. Made of welded steel sections, the forks are hinged to the main frame and adjusted manually by a screw arrangement. They are offered with straddle-type trucks of 2000 or 3000 lb. capacity having standard load wheels.



Circle No. 202 on Reader Service Card for more information

Moving Coal—300 Tons Per Hour—Baker Mfg. Co.

Generating 170,000 kilowatts every 24 hours a New York state public utility consumes 1500 tons of coal a day. To feed such a husky appetite an Allis-Chalmers H D-20 crawler tractor has been equipped with a special Baker Coal Handling Bulldozer blade. It moves 12 to 14 tons of coal per pass on a 150 ft. haul and sets a pace that moves a 300 ft. mountain every 50 minutes.

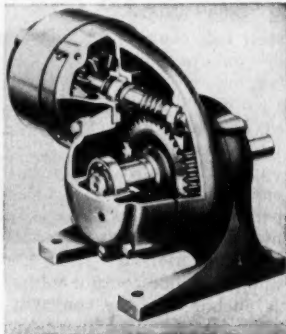


Circle No. 203 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

Right Angle Motor--U. S. Electrical Motors Inc.

Horizontal or upright mounting are possible with this right-angle worm-gear motor, manufactured by U. S. Electrical Motors Inc. Introduced as Type GW Syncro-gear, the design presents numerous exclusive features not heretofore available in low speed motors, according to the manufacturer. It incorporates a cantilever design to protect gear alignment. Mounting stresses are absorbed by a rugged single unit pyramidal base with "spread eagle" feet. The motor embodies splash lubrication, a hardened and ground worm, leakproof oil seal and asbestos-protected windings. It has self-locking brake action. The motor is built in speed ranges from 20 to 155 rpm and gear ratios up to 58:1. Horsepower ranges from 1/4 to 3. Available in both 3-phase and single phase.



Circle No. 204 on Reader Service Card for more information

TIME AND MONEY SAVER!

SPEEDWAYS new, low cost, portable power belt conveyor

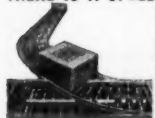
SPEEDLIFT

Designed for loading and unloading trucks, railroad cars, etc.

This versatile power conveyor is also ideal for warehouse stacking, as booster in gravity conveyor line, as a horizontal assembly line unit and many, many other everyday jobs.



THERE IS A SPEEDWAYS CONVEYOR TO SUIT YOUR NEEDS



SPEEDWAYS GRAVITY WHEEL CONVEYORS.
Light, sturdy, portable. Handle up to 600 lbs. distributed load.



SPEEDWAYS GRAVITY ROLLER CONVEYORS.
Best for hard-to-handle items like kegs, baskets, milk cans, etc.



SPEEDLIFT AND SPEED-BELT POWER CONVEY.
ORS for heavy duty boosting and loading and for assembly lines.

Your nearest SPEEDWAYS distributor will gladly show you how SPEEDWAYS low cost equipment can speed your production and save money. Call him or write us.



1246 NIAGARA STREET
BUFFALO 13, N. Y.

Also Mfd. in Canada;
Union of So. Africa

Circle No. 116 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

Circle No. 118 on Reader Service Card for more information

ALLEN Hydraulic SHOVELS

Make jobs like this



a "SNAP" for your fork trucks ...

You can keep your trucks busy *all* the time... moving castings, coal, cement, and other bulk materials. ALLEN Shovels make your fork trucks multi-purpose machines, and increase your savings. Normal fork truck operation is not impaired... shovel attached or detached in five to ten minutes.

ALLEN'S exclusive straight-line mounting prevents damage to shovel and truck. Shovel contour



assures full bucket with less truck effort. Easily regulated dumping speed. Capacities: 8 to 81 cu. ft.

Get all the facts on this time-and-money-saving low-cost investment!

Specify make of your truck or see your fork truck dealer.



ALLEN INDUSTRIAL PRODUCTS, INC.
1200 LIBERTY STREET, BATTLE CREEK, MICH., U.S.A.

Chem-Board Tote Boxes

•
•
•
•

HELP BUILD AIRCRAFT



Many plants building the planes needed to make the nation strong keep materials, parts and sub-assemblies flowing to production lines in thousands of Convoy Chem-Board Tote Boxes. The nesting boxes illustrated are stored in minimum space while awaiting new loads.

Chem-Board is made of corrugated fibre-board, chemically impregnated by Convoy's exclusive process. It is flint hard and rock strong. It is not weakened by moisture. It is impervious to machine oils. Convoy Tote Boxes cost and weigh 50% to 80% less than steel.

The lightness, toughness and economy of Chem-Board Tote Boxes are unmatched. Tell us the style you use... we'll send a free production sample from the next run for you to test. As a guide for present and future availability, our current production capacity is reserved for the unprecedented demands from old customers and "DO" orders. Orders rated DO-MRO are acceptable. Write today.

Standard and Custom made
Nesting - Stacking - Vertical
CHEM BOARD TOTE BOXES

CONVOY, INC.

P.O. Station B, Box 216-F
CANTON 6, OHIO

Circle No. 117 on Reader Service Card for more information

Circle No. 119 on Reader Service Card for more information

Cambridge Gripper Slings

STRONGER SAFER

for any lifting job!



STRONGER—because their spiral wire loop construction provides a wide bearing surface and greater gripping power around the load. In a basket hitch, shown here, you get the benefit of the Gripper Sling's maximum strength. A noose hitch gives greatest gripping power.

SAFER—because the Gripper Sling fabric will not break suddenly. Individual broken wires are not buried within a core, are immediately visible when broken. The sling may continue in use even after several wires are broken since the body of the sling absorbs the slack from individual breaks.

Investigate Gripper Slings today and see for yourself how they make any lifting job easier and safer. See your distributor or write direct for literature and technical data. Gripper Slings are sold through industrial supply, safety equipment and materials handling jobbers.



The Cambridge Wire Cloth Co.

WIRE
CLOTH

METAL
CONVEYOR
BELTS

SPECIAL
METAL
FABRICATIONS

Department W
Cambridge 11, Md.

DISTRIBUTORS—ASK ABOUT VALUABLE TERRITORIES STILL OPEN



BATTERY CHARGING INFORMATION

to help you get more efficient and reliable battery charging at lower cost. Just send in the coupon below

for these Bulletins



THE ELECTRIC PRODUCTS CO.

1790 CLARKSTONE ROAD • CLEVELAND 12, OHIO

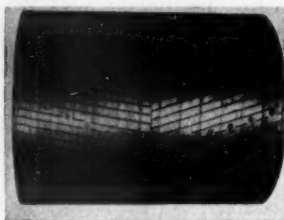
NAME _____
TITLE _____
COMPANY _____
STREET _____
CITY _____ ZONE _____ STATE _____

Circle No. 120 on Reader Service Card for more information

144

Spiral Pulley Lagging—American Pulley Co.

The American Pulley Co. has announced the development of Griplex Spirallagging for their line of solid welded-steel belt conveyor pulleys. The lagging is made from high-strength duck with extra-thick superior quality rubber facing, according to the manufacturer.



The material is applied in one continuous piece under tension, and is anchored to the conveyor pulleys by a special adhesive and an exclusive American bolting method which is said to use fewer bolts—fully countersunk for long life and belt protection.

Circle No. 205 on Reader Service Card for more information

Mechanical Switching Device—Jervis B. Webb Co.

The Flexi-Switch, a mechanically operated pilot device for controlling relays, motor starters, solenoid valves, etc. has been developed by Jervis B. Webb Co. It is claimed that the device is particularly adapted for operating switches, stops and feeders, automatic transfers and similar devices on conveyors. Features cited include: actuating arm which can be set in any one of 72 positions in the full 360° arc.; two snap-action single pole double throw switch elements rated 15 amps at 120 volts a.c. which permit four electrically separate contacts; arm rotation of only 10° in either direction is needed to operate contacts; objects moved by gravity can operate switch; housing and cover are sturdy aluminum castings capable of withstanding industrial abuse.

Circle No. 206 on Reader Service Card for more information

Flow Meter—Minneapolis-Honeywell Regulator Co.

Accurate measurement of flow of liquids and gas under difficult conditions is said to be made possible by the development of a new flowmeter by Minneapolis-Honeywell Regulator Co. The unit is claimed to be capable of handling toxic or highly corrosive substances, viscous liquids or other fluids under pressures up to 20,000 psi and temperatures ranging from -269° to 1200 degrees F. The device was designed for use in laboratory work as well as for industrial flow and automatic control applications.

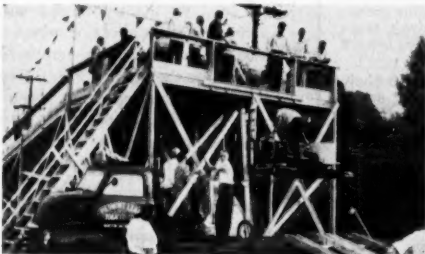
Circle No. 207 on Reader Service Card for more information

NOVEMBER, 1952 • FLOW

Fork Truck Gets in "The Derby"

Derby Time (soap box derby) in Winston-Salem resulted in another fork truck lifting job this year. To raise miniature cars to the platform at the top of the racing incline, this fork truck, borrowed from the Piedmont Leaf Tobacco Co. was put into service. Cars were wheeled up ramps onto a truck as shown in the photo (left). There, the fork truck took over, and raised the cars the remainder of the height to the platform.

Courtesy Mobilift Co.



For efficient storage
and handling of

BULK RAW MATERIALS
FINISHED PRODUCTS

a marietta

concrete storage system

Here's the heart of efficient plant operations . . . modern, economical, large capacity concrete storage tanks! MARIETTA concrete storage tanks are available in any size, any arrangement, can be equipped with necessary materials handling equipment to meet your present and future demands for air-tight, moisture-free, fire-safe, acid-resistant storage facilities. MARIETTA concrete storage systems are engineered to your specific needs, quickly erected to provide permanent, low upkeep, large capacity tanks that keep losses down, profits up. Write, wire, phone for details . . . TODAY.

THE MARIETTA CONCRETE CORPORATION

MARIETTA, OHIO

BRANCH OFFICES

509 Fifth Ave., New York 17, N. Y.

Pulaski Hwy. at Race Rd. Baltimore 21, Md.

Circle No. 121 on Reader Service Card for more information
FLOW • NOVEMBER, 1952

Streamline

with

BAUGHMAN

**BULK MATERIAL
HANDLING COSTS**



CONVEYORS



MODEL UT-51



MODEL
Q-51

MODEL Q-51 and UT-51 undertrack:
two of several types of BAUGHMAN
Screw Conveyors for all non-abrasive,
fluid-in-motion materials.



MODEL 230

MODEL 230—one of many types of
BAUGHMAN belt, belt-and-bucket and
chain-and-flight conveyors for every
kind of bulk material.

Circle No. 122 on Reader Service Card for more information



BAUGHMAN MFG. CO.
INCORPORATED

122 ARCH ST.

Jerseyville, Illinois

Circle No. 123 on Reader Service Card for more information

Speed up Loading with the HOHL ADJUSTABLE RAMPS



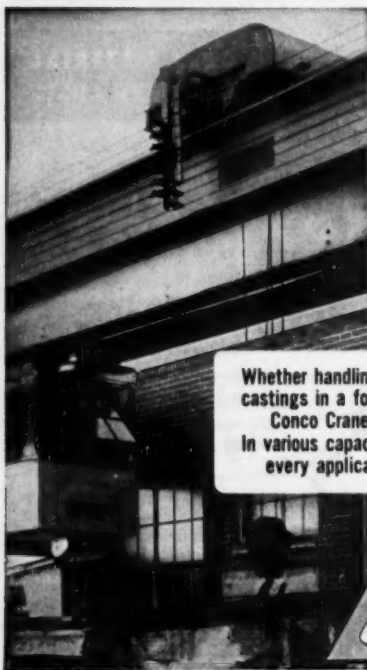
● Just rest the lip of a HOHL Adjustable Ramp on the bed of a truck and float your load aboard—quickly, easily. Flexible construction keeps this revolutionary ramp parallel to both the truck and the loading dock, regardless of off-center loading! If trucks suddenly move away from platforms before the ramp is lowered, the automatic safety device lowers ramp into level position.

The labor and time you'll save with HOHL Ramps will soon pay for their installation. These ramps can be mounted on your existing loading docks or installed in new buildings. Wherever and however you use HOHL Ramps, they'll pay you in loading efficiency.

WRITE TODAY for complete details



HOHL MACHINE & CONVEYOR CO.
2657 Main Street Buffalo 14, New York



*First
for
Performance*

Whether handling steel in the yard, castings in a foundry, or servicing a machine shop, Conco Cranes rate first for performance. In various capacities and spans, a type for every application. Write for details.



CONCO ENGINEERING WORKS

Division of H. D. Conkey & Co., 38 Grove St., Mendota, Ill.

Circle No. 124 on Reader Service Card for more information

146

Literature Featured in Ads . . .

(Continued from page 53)

A wealth of information is available to help solve sealing operations where Bostitch staplers can be applied to do the job. Whether cartons or bags are to be sealed, Bostitch claims to have a machine to perform the task. A free bulletin describes 30 of the 800 Bostitch models most often used for wrapping, packing and container closing.

Circle No. 75 on Reader Service Card

Balanced design puts 80 per cent of the load on the wheel and only 20 percent on the operator where Sterling Wheelbarrows are employed, according to the manufacturer. Description of models suited to every need are outlined in Catalog No. 63A available upon request.

Circle No. 144 on Reader Service Card

No lost space and the need for loading docks is eliminated through the use of Rotary Levelator, according to Rotary Lift Co. statements. Installations with capacities up to 80,000 lbs. bring floor levels up to truck level at the touch of the fingertip controls. Information is available in catalog No. RE-201.

Circle No. 132 on Reader Service Card

A Peg Rack conveyor for small parts handling is described in literature available from the Rack Engineering Co. Pegs are adjustable to meet the needs of the product. The sturdy truck can be moved with full load on its caster base.

Circle No. 128 on Reader Service Card

Magnesium dockboards manufactured by Magline, Inc., are available in 34 standard models. Bulletin No. DB-203 describes the many exclusive features maintained by the manufacturer. Magnesium, they claim, weighs less than one-third in comparison with similar steel equipment.

Circle No. 56 on Reader Service Card

Conco Engineering Works claims its cranes rate first for performance in steel yards and foundries. Literature is available describing various capacities, spans and types for every application.

Circle No. 124 on Reader Service Card

Angier Corp. claims their Snake Tape seals packages three times faster. It is waterproof and reinforced; easily dispensed by cut-off-type machines. Full facts are available and a 20-yard free sample will be sent upon request. Circle No. 79 on Reader Service Card

More information about scrap metal baling may be obtained from Allied Steel & Conveyors, Inc. Their scrap baler is said to inexpensively form densely-packed bundles weighing about 400 lbs. apiece. One man can wind a bale in a few minutes and keep floors cleared for efficient operations.

Circle No. 137 on Reader Service Card

Where removal of chips, scraps and sludge becomes a problem around machines in the plant, Hapman tubular conveyors can be called upon to perform the task. Many new machines can be equipped before delivery or older machines already in operation can be fitted now. Information concerning Hapman systems can be obtained in bulletin form.

Circle No. 98 on Reader Service Card

Free information on the Monroe

Company's Swift-Floor application for quick floor repairs is available upon request. The manufacturer states that the surface is ready to use immediately after being repaired. It requires no mixing or chipping and will withstand loads up to 50,000 lbs. Circle No. 112 on Reader Service Card

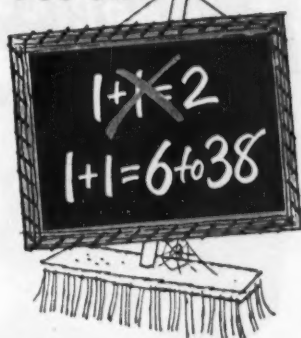
Full details and information may be obtained from Oxy-Catalyst, Inc. concerning its OCM Catalytic Exhaust attachment, which they claim reduces carbon monoxide to a safe level. The unit replaces the muffler on industrial trucks using white gasoline for fuel. It is said to kill all fumes and odors from the exhaust gases of the internal combustion engines.

Circle No. 93 on Reader Service Card

Safeguarding perishable foods through rapid handling between loading platform and cold storage chambers is just one of the operations suited to Elwell-Parker industrial trucks. An E-P case history showed reduction of man-hours approximating 75 percent. A new general catalog covering the company's complete line may be obtained for the asking.

Circle No. 5 on Reader Service Card

Yes Sir!



and we can prove it, too!

1 man plus 1 Wilshire Power Sweeper sweeps 6 to 38 times faster than 1 man plus 1 broom. And Wilshire not only sweeps faster...it sweeps cleaner and without dust...inside and outside...wherever a man can handle a broom.



CUT YOUR SWEEPING COSTS 75%

In hundreds of companies in over 100 different industries, as well as in large cities and small communities, WILSHIRE Power Sweepers are cutting sweeping costs an average of 75%...even where only 1 broom-pusher formerly was used full-time.

Regardless of the size of your plant or your community, WILSHIRE Power Sweepers quickly pay for themselves.

Write or wire for the name of your nearest WILSHIRE Dealer who will be glad to give you a free demonstration without obligation of any kind. Illustrated brochure, on request, gives helpful data.

**WILSHIRE
POWER
SWEEPERS**



326 West Cherry Chase Dr.
Glendale 4, California

IN CANADA: PLANT MAINTENANCE EQUIPMENT CO. (CANADA) LTD. TORONTO
Circle No. 126 on Reader Service Card

NEW Market Forge

Catalogs

- COMPREHENSIVE
- INFORMATIVE

Write Now For

Your Copies of These Complete, NEW 1953 Editions

32 PAGES STANDARDIZED MATERIALS HANDLING EQUIPMENT CATALOG #1202

Conveyors	Pallets	Electric Trucks
Load-Units	Shelving	Floor Trucks
Load-Racks	Trailers	Lift Trucks
Load-Skids	Dollies	Pallet Trucks
Semi-Skids	Jacks	Special Equip.

Market Forge Materials Handling Equipment Catalogs are ready to show you over 100 serviceable items for use in your plant. We invite you to write today for your copies.

20 PAGES LOAD-MOBILE CATALOG #1102

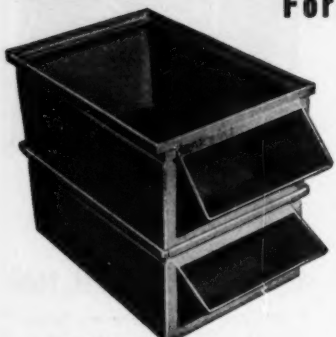
Electric Tractors
Freight Trucks
Lift Trucks
Fork Trucks
Pallet Trucks

Market Forge Company
MATERIALS HANDLING DIVISION
35 Garside St. Everett 49, Mass.
55 years in the Materials Handling Business

Circle No. 125 on Reader Service Card for more information

Engineered Containers

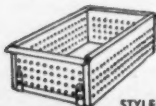
For Economical, Fast, Parts Handling



PILING BOXES



STYLE NO. 5



STYLE NO. 8

No matter what type of small parts you are handling, there is a TELDAY container specifically engineered to meet your needs. If you want a container that is liquid-tight, if you have need for a shop box that can be used for carrying as well as storing, if the container you buy must double as a feeding unit at work stations, there is a TELDAY Engineered Container that is made just for this purpose. And there are dozens of other models that are also available for immediate delivery.

Write for free literature illustrating and describing our complete line.

Telday

MANUFACTURING CO.

2036 E. 22nd STREET • CLEVELAND 15, OHIO

1. Increase Output Immediately
2. Eliminates Rework
3. Proper Parts Positioning
4. Complete Protection and Visibility
5. Parts of Any Shape or Size
6. Test Units Available

RACK ENGINEERING COMPANY
 CONNELLSVILLE, PENNSYLVANIA
 AGENTS IN PRINCIPAL CITIES

128

Circle No. 128 on Reader Service Card for more information

United States Rubber Co. engineers constantly are developing new rubber belting installations to fit individual needs. Whether it be required to withstand the effects of acids, heat or some other damaging element, U. S. Rubber engineers maintain they can find the answer to any belting problem that might arise.

Circle No. 20 on Reader Service Card

American Monorail Co. engineers are glad to inform interested industrialists of their overhead crane that turns right angle corners. Information they provide explains the use of a 90-degree turntable that shifts the crane from one craneway to another at right angles.

Circle No. 23 on Reader Service Card

The Raymond Corp. maintains that its complete line of electric industrial trucks can be operated within six-foot aisles. Bulletin 703 is available with complete information on the Raymond line and an actual demonstration will be arranged at the convenience of the company official making the request.

Circle No. 22 on Reader Service Card

RAZORBACK Bolted-Type PALLETS

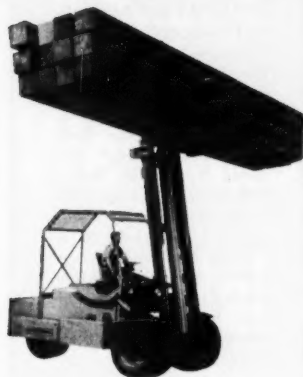
Bolted-type Pallets are now available in RAZORBACK Brand, in addition to Nailed Pallets . . . Expendable Pallets . . . Collapsible Crates, Boxes and Racks . . . a RAZORBACK Brand Product for ALL your pallet requirements! Send us your specifications for prices and delivery!

Arkansas Pallet Co.
 P. O. Box 794-A Phone 6474
 PINE BLUFF, ARKANSAS



Circle No. 129 on Reader Service Card
 NOVEMBER, 1952 • FLOW

**THESE SILENT HOIST
WORK HORSES WILL
SAVE UP TO 75%
IN TIME AND LABOR COSTS**



**HEAVY-DUTY FORK
LIFTRUK**

5-7½-10-15 TON CAPACITIES

The heavy-duty "Silent Hoist" LIFTRUK and LIFT-O-KRANE feature fast handling of unbalanced and capacity loads, with maximum stability . . . high lifting range . . . short turns in narrow aisles create added acres to your storage space.

These SILENT HOIST features add up to faster inloading, most efficient inter-plant handling and scientific stacking, quicker out-loading to truck, trailer or car, with time and cost savings, very often up to 75%.

LIFT-O-KRANE



Combination Beam Crane and Fork Lift, with separate power winch for Load Line.

SEND FOR BULLETIN 75 on LIFT-O-KRANE and BULLETIN 77 on LIFTRUK.



Either machine can be supplied with RAM attachment.

SILENT HOIST & CRANE CO.
Pioneers of Heavy Duty
Materials Handling Equipment

63rd STREET BROOKLYN 20, N. Y.

Circle No. 131 on Reader Service Card
FLOW • NOVEMBER, 1952

News from the Sales Field . . .

(Continued from page 54)

placed in charge of a territory including Akron, Canton, Alliance, Columbus and Sandusky. Covering the Buffalo area for Ohio Tramrail will be Tedd Harris of the Tedd Harris Co., North Tonawanda, N. Y.

Thomas Truck and Caster Co. has announced that The Ohio Equipment Co. Cleveland, Ohio, has added two salesmen to its force. They are Arthur Berger, and Clarence Weidner. Thomas has also announced the addition of Richard H. Cable to the sales staff of the E. J. Werner Co., Akron, Ohio.

The Fabrics Division of the Du Pont Co. has announced the appointment of Voss Belting & Specialty Co., 5649 North Ravenswood Ave., Chicago as the first distributor of Teflon coated glass fabrics in the form of Conveyor Belting.

Circle No. 130 on Reader Service Card

WE HELP YOU SOLVE STORAGE PROBLEMS WITHOUT OBLIGATION



STORACK

Steel Framing Material
For Portable Storage Racks

**PERMANENT, YET REARRANGEABLE
TO FIT CHANGING STORAGE NEEDS**

Your storage arrangement is never obsolete with reusable STORACK materials. Designs of every kind for every commodity are available. Simplified construction—channel, fittings and serrated nuts—lets you assemble your own racks and save money dollars. No skilled labor needed. No welding or special tools required.

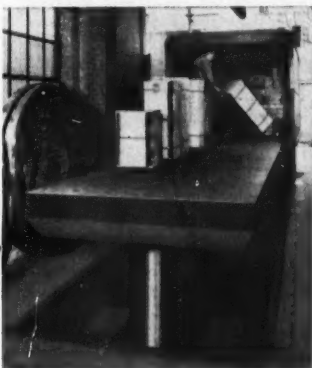


**INVESTIGATE OUR FREE RACK
PLANNING SERVICE**

AMERICAN STEEL & IRON WORKS
58th St. & S. Lowe Ave., Chicago 21, Ill., Dept. 2

**One man can lift
80,000 lbs.**

**Rotary Levelator
slashes handling costs**



The overhead conveyor system in this plant couldn't handle loading into covered trucks and trailers. Now a Rotary Levelator (20,000 lb. capacity) does the job cheaper and faster.

Thousands of plants are using this economical equipment to lift loads directly from plant floor to trucks, freight cars, machines or different building levels. Rotary Levelators

speed plant traffic, conserve manpower, cut costs. Save plant space, too . . . no need for loading dock and ramps. Safe, dependable, economical hydraulic operation. Capacities up to 80,000 lbs. Installation simple and inexpensive. Write for Catalog RE-201.

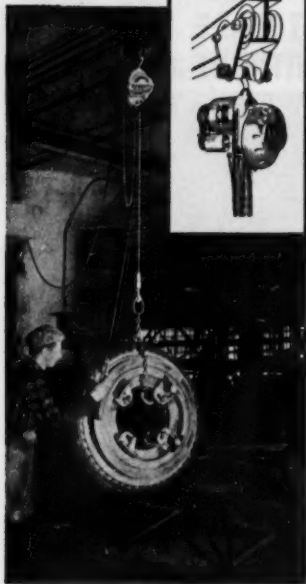
ROTARY LIFT CO.

1144 Kentucky, Memphis 2, Tenn.

Rotary

LEVELATOR LIFT

Circle No. 132 on Reader Service Card for more information



LICKS THE WORK — NOT THE WORKER

Manual lifting quickly gives workers that licked feeling. But, with a tireless 'Budgit' Electric Hoist to save muscles, young men, women, older men keep defense and civilian production rolling.

The 'Budgit' Hoist converts electricity into powerful hoisting action. Every capacity—from 250 to 4,000 pounds. Uses only a few cents worth of electricity to lift loads all day. Operators retain their efficiency, avoid the hazards of lifting.

Every 'Budgit' Hoist is a complete lifting unit in itself! No extras to buy. Just hang it up, plug into the nearest electric socket, and use! A.C. and D.C. models. Prices start at \$119. For more detailed information, write for Bulletin No. 391.

'BUDGIT' CONDUCTOR CORD TROLLEYS—keep flexible conductor cord up out of way while carrying electricity to monorail hoists. Roll smoothly around curves, past switches.

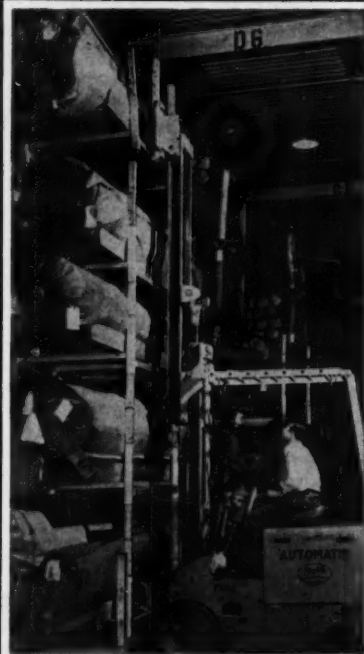


'Budgit'
HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Bor" Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, and 'American' Industrial Instruments.

Circle No. 123 on Reader Service Card
150



THREE AT A TIME, rolls of broadloom carpet are tiered to a height of 15 feet in a handling system devised by Sears, Roebuck & Co. for use at its Philadelphia warehouse. Rolls each include about 100 yards of material, weigh 250 pounds apiece. Fork truck lifts them in "pan" pallets measuring 48 x 120 ins. Square-tube legs permit safe five-high stacking. Rolls of carpet can be removed from storage without disturbing the rest of the tier.

outlasts all others **4 to 1**

EXCLUSIVE!

THE HEART OF THE HYDROELECTRIC

This sturdy Dyna-Dual Power Unit outperforms all others for ease of operation—dependability—lowest maintenance cost and economy of power.



Over 1071 different types, sizes and models—there is one for every need.

HYDROELECTRIC with exclusive Dyna-Dual Power Unit gives 4 times longer operating life—plus 75% lower maintenance expense—making it your best investment for material moving.

HYDROELECTRIC also brings you all these **SUPERIOR** functional features: Twin driving wheels • Braking at any handle position • Heavy Duty Motor, vertically mounted • 50% Easier steering • Shorter overall length • Unmatched stability • Frictionless bearings • Larger drive and trail wheels • Completely sealed differential transmission • Outstanding accessibility and ease of operation.

HYDROELECTRICs will keep rolling and moving your materials at lower costs than any truck in its class. Want proof? Complete facts and data on request.



LIFT TRUCKS
INCORPORATED

2423-31 SPRING GROVE AVE.
CINCINNATI 14, OHIO

Circle No. 124 on Reader Service Card for more information

NOVEMBER, 1953 • FLOW



We Build Special Trucks To Your Specs!

and trailers

THE
KILBOURNE & JACOBS
MANUFACTURING CO.
COLUMBUS 16, OHIO

We invite your inquiry.
Complete design service.



Circle No. 135 on Reader Service Card
FLOW • NOVEMBER, 1952

Savings in Coil Handling . . .

(Continued from page 84)

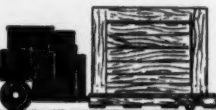
storage were idle the entire time it took for the truck to return to the car to pick up additional coils. This unbalance and idle time in the working group resulted in excess labor costs, as shown in the multi-man chart on page 84.

This chart is typical of those developed for each individual handling operation to aid in highlighting methods improvement possibilities. It shows that of a total of 15.54 man-minutes per cycle of work, 5.09 minutes or 33% was idle time. This same condition of excessive idle time caused by unbalance in the work load of the various groups was evident in all other operations involved in handling steel coils.

At the Manufacturing Plant

Poor space utilization existed at the manufacturing plant because coils were stored on skids which could only be placed on the floor. No provisions were made to stack this material

Let's all
VOTE!



REVOLVATOR CO.

REVOLVATOR CO.
8839 Tonnelle Ave., North Bergen, N. J.

Gentlemen:
We want to know, without obligation, all about Revolvator Go-Getter Pallet Type Lifttrucks.

Name _____
Position _____
Company _____
Address _____

Circle No. 136 on Reader Service Card

Clear your
floor area



. . . of scrap strip

Quickly . . .

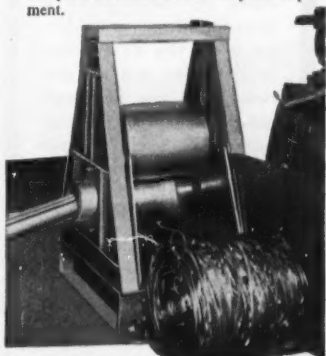
with an Allied Scrap Baler

. . . simple, inexpensive, electrically operated. Forms densely packed bundles 19" x 19", about 400 lbs. Wound up in a few minutes. Needs only one man.

Sell Bundles of Steel

Profitably . . .

. . . saves time, clears floor areas. A profitable means for quick salvaging right at shearing operations. Produces compact, saleable bundles ready for shipment.



ALLIED STEEL & CONVEYORS, INC.

17363 Healy • Detroit 12, Mich.

Complete Material Handling Systems
Designed • Fabricated • Erected

Circle No. 137 on Reader Service Card

HOWE Scales

HOWE
SCALES

JUST
OFF THE
PRESS

Let Us Send You This Now Condensed Catalog

The NEW Howe Scale Condensed Catalog showing a complete line of industrial scales and hand trucks is yours for the asking. Includes data on the new Howe Weightograph and the new Howe Tape-Drive Dial Scale line for improved weighing operations. Send for your copy today.

HOWE SCALE
RUTLAND, VERMONT

Dept. F11, Rutland, Vermont

Please send me:
HOWE CONDENSED SCALE CATALOG NO. 11 ☐
HOWE HAND TRUCK CATALOG NO. 15-B ☐

Name _____
Title _____
Company _____
Address _____
City _____ State _____

Circle No. 138 on Reader Service Card
152

Savings in Coil Handling . . . SPECIAL STOCKING RACKS

using pallet racks or other means. Here again, material was not stored to make use of vertical storage space.

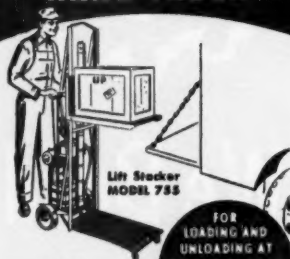
Poor utilization of personnel existed because of the large amount of manual handling involved each time coils had to be moved. This included unloading coils from the warehouse, from the street trailer, storing coils in and removing from permanent racks, and delivering them to production machines.

In a new handling method developed, steel coils could be moved throughout their flow through the warehouse and manufacturing plant in portable, stacking-type storage racks.

This rack has nesting caps on the bottom of each square tubing upright, which fit inside the 2½" upright of the rack on which it rests. This permits tiering racks 3 or 4 high to

Circle No. 140 on Reader Service Card

NEED A LIFT? GRAND HYDRAULIC LIFT HAND TRUCK



Electric drive hydraulic system lifts 750 lbs. up to 85 inches in a few seconds. One man can safely raise and stack heavy loads.

FOR
LOADING AND
UNLOADING AT
TRAILER TAILGATE
HEIGHT AND FOR
STACKING DRUMS
AND CASES.

GRAND LIFT STACKER MODEL 755

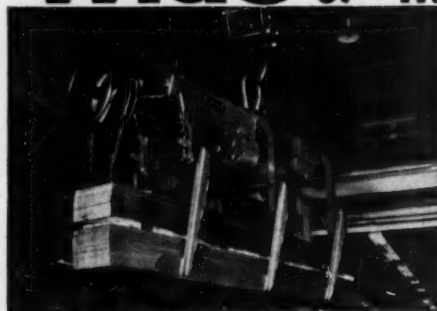
Pallet or Fork Lift to suit your requirements. Maximum Heights 54" to 94". Uses Standard Auto Battery Built-in Battery Charger. Completely Portable. Low Cost.

Other models include manually operated hydraulic lift hand trucks to suit many lifting, moving, and stacking operations.

WRITE US OR ASK YOUR LOCAL MATERIALS HANDLING DEALER

ALLIED MANUFACTURING & SALES CO.
MATERIALS HANDLING DIVISION OF THE
GRAND SPECIALTIES COMPANY
1201 N. WELLS ST., CHICAGO 6, ILL.

Wide or Narrow...



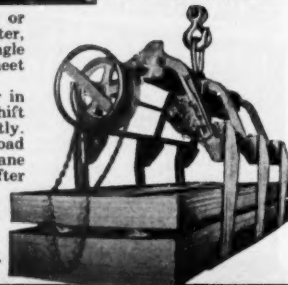
**1 C-F
LIFTER
HANDLES
THEM ALL**

Whether your production requires a few or many widths of sheet steel, 1 C-F Lifter, with its wide range of jaw and carrying angle adjustments will probably meet all your sheet handling requirements.

Adjustments are made by the operator in a few seconds, permitting the Lifter to shift from wide to narrow sizes almost instantly.

Because it can pick up, carry and unload more loads per hour, using less man and crane time than any other method, a C-F Lifter will soon pay for itself.

Bulletin SL-28 gives you the complete story of C-F Lifter advantages to you. Ask for it today. There's no obligation.



CULLEN-FRIESTEDT CO.

1320 South Kilbourn Avenue • Chicago 23, Illinois

Circle No. 139 on Reader Service Card for more information

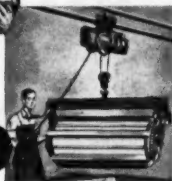
NOVEMBER, 1952 • FLOW

Circle No. 141 on Reader Service Card
Recovered 3 TIMES Its
Cost In 2 YEARS Use...



**No Repairs
or Replacements***

**Unsolicited statement made
by a Michigan user about
their Titan hoist.*



Material handled overhead saves valuable floor space for production.

The Titan is a powerful, little hoist with big hoist features: Improved Worm Drive, Electric Brake, Steel Wire Hoisting Rope, Push-Button Control. Capacities: 250 lbs. to 1 ton; with monorail trolley or upper hook suspension.

Write for Titan Bulletin 801A; also Bulletin 695 on light, overhead Electric Hoist Cranes.

DETROIT HOIST & MACHINE CO.
8215 Morrow St., Detroit 11, Mich.
Manufacturers in Detroit since 1908

Savings in Coil Handling...

take advantage of vertical storage space. The racks have several unique design features, necessary to fit the particular needs of the operation. (See sketch for details.)

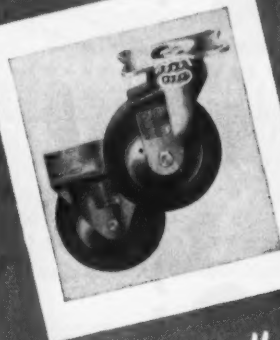
1. They were designed to be handled from the end rather than the side. In addition to permitting travel in narrower production department aisles, handling in this manner gives a greater ratio of storage space to aisle space.
2. Channel support members are located only $3\frac{1}{2}$ " off the floor so that even 300-lb. coils can be rolled into and out of the rack without difficulty.
3. Nesting caps are located on the bottom of the racks. If the caps were on top and the open tubing section rested on the floor, there would be the possibility of the section being closed in, thus interfering with nesting operation.

A description of the new method of coil handling with these racks follows:

**Specify Darnell
for Complete
Satisfaction**

• Save Money,
Floors, Equipment
and Time by using
**DARNELL Casters
and Wheels... Always dependable,**

**Free
MANUAL**

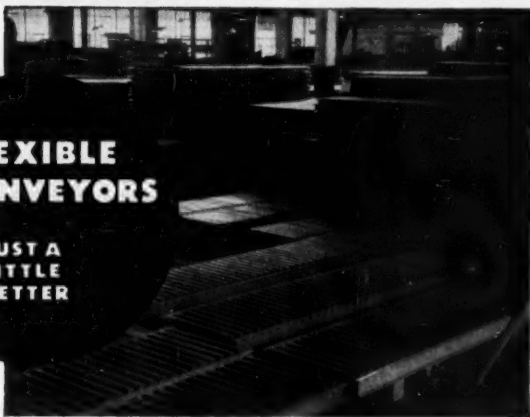


**Demand Darnell
Dependability**

DARNELL CORP., LTD.
DOWNEY, (Los Angeles County) CALIF.
60 Walker Street, New York 13, N.Y.
36 North Clinton, Chicago 6, Illinois

FLEXIBLE CONVEYORS

JUST A
LITTLE
BETTER



FLEXIBLE Gravity Roller Conveyors are an achievement in functional design. They embody "extras" which deserve your consideration:

- just a little more capacity
- just a little more durability
- just a little more versatility

AND YET, THEY COST NO MORE!



**FLEXIBLE CONVEYOR
COMPANY**

Manufacturers of a Complete Line of Conveying Equipment.
1824 McDonough Street Sandusky, Ohio

Circle No. 142 on Reader Service Card for more information

FLOW • NOVEMBER, 1952

Circle No. 154 on Reader Service Card

MERRILL MATERIALS HANDLING DEVICES

4
SIZES



LIFTING CLAMP



TWIN LIFTER



HAND GRIP



DRUM TILTER



DRAG CLAMP



DRUM OPENER



3M-1

MERRILL BROTHERS
56-35 ARNOLD AVENUE
MASPETH, N. Y.

Circle No. 143 on Reader Service Card
154

Savings in Coil Handling . . .

Unloading from Box Cars

Incoming coils are removed from box cars and rolled into the stacking-type coil racks. The loaded racks are transported to storage by a fork truck and stacked four-high for maximum use of vertical storage space.

Shipping Coils to the Manufacturing Plant

Racks of material are removed from storage by fork truck and prepositioned at a staging area adjacent to the truck dock. Here, too, they are stacked four-high to minimize storage space requirements.

When the trailer is to be loaded, racks are removed from the staging area, transported to the trailer gate, and positioned inside the carrier.

Due to a lack of door facilities at the manufacturing plant, it was necessary to provide some means of moving racks to the rear of the trailer for pick-up by a fork truck. To accomplish this, four-wheel dollies are used. Coil racks are placed in them when loading into the trailer at the ware-

Circle No. 145 on Reader Service Card

*Let's all
VOTE!*



REVOLVATOR CO.

REVOLVATOR CO.
8639 Tonnelle Ave., North Bergen, N. J.

Gentlemen:
We want to know, without obligation, all about Revolvator Red Giant Lifttrucks.

Name _____
Position _____
Company _____
Address _____

..... Perfect Balance!



STERLING D3 1/2 W
(above) Sturdy wood-handle barrow for dry materials. 3 1/2 cu. ft. capacity.

STERLING C5W
(right) Ideal for concrete, mortar, etc. 5 cu. ft. capacity.

Sterling Wheelbarrows move quickly and easily because of their perfectly balanced construction. Actually 80% of the load is on the wheel . . . only 20% on the operator. That certainly lightens the load for fast, easy wheeling.

Wood handles are longer, formed to fit the operator's hands. Steel channel legs and reinforcements are designed for maximum leg clearance. Write for new Wheelbarrow Catalog No. 62A.



**DEALERS NEEDED —
WRITE FOR DETAILS.**

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

Sterling
WHEELBARROWS



Look for this Mark of
STERLING Quality

Circle No. 144 on Reader Service Card for more information

A 5750-56-R2

NOVEMBER, 1952 • FLOW

Savings in Coil Handling . . .

COSTS REDUCED IN TWO MAJOR AREAS

house. A sketch of this type dolly is shown.

Handling Racks at the Plant

The racks, riding in the dollies, are pushed into position at the rear of the trailer for pick-up by a fork truck. Racks are then raised out of the dollies, taken to storage and stacked three-high. (Three-high stacking only is possible because of ceiling heights.) The dollies remain in the trailer and are used for succeeding loads of material.

Empty coil racks are accumulated and sent back to the warehouse on the trailer's return trip. They can be handled two at a time inside the trailer, when empty to reduce handling.


In delivering the steel coils to the production machines, an entire rack load of material is left at the machine wherever space exists. Where sufficient space is not available, individual coils are easily rolled out of the rack and positioned at the machine in the required number.

Results of the Improved Handling Method


The improved handling method effected cost reductions in two major areas—storage space and material handling personnel (manhours).

At the warehouse, the use of the racks stored four-high resulted in a space savings of 23,000 sq. ft. (A total of approximately 81,000 sq. ft. was previously devoted to coil storage.) Using an expense pro-ration of \$1.70 per square foot per year, this space savings amounted to a cost savings of \$39,000 per year. This \$1.70 expense figure, developed by the firm's Accounting Department, was obtained by distributing warehouse expense items, such as heating, supplies, depreciation, taxes, etc. over the warehouse floor. Used in this manner, it gives a conservative estimate of cost savings realized through the reduction in floor space requirements.

At the manufacturing plant, the use of the coil racks to store in-transit raw material resulted in a savings of 1460 sq. ft. Using an expense figure

The  Lift-Jack System

① Saves Useful Space	② Lightens Heavy Loads	③ Cuts Handling Costs	④ Saves Valuable Time
----------------------	------------------------	-----------------------	-----------------------



Through production, in and out of storage, on and off freight cars, the COLSON Lift-Jack System saves you man-hours, money and valuable space.

Many other cost-saving materials handling devices are produced for you by COLSON, including hand trucks, platform trucks, drum and barrel trucks, and precision built,

roll-easy wheels and casters for every type of industrial application.

Your nearest COLSON engineer can tell you how modern materials-handling can speed up your operation and save you money. Write us or consult the yellow pages of your local phone book for the COLSON representative near you. Write Today for new Catalog

THE COLSON CORPORATION

ELYRIA, OHIO

CASTERS . . . LIFT-JACK SYSTEMS . . . INDUSTRIAL TRUCKS



**IF WHEELS
are a vital part
OF YOUR
PRODUCT ?**

WHEELS AVAILABLE WITH

- Thru-Hub Bearings
- Positive-Lock Hubs
- Drive Hubs

TIRES

- Semi-pneumatic or solid rubber

BEARINGS

- Roller, Ball, Oilite, Bronze

... be certain you roll along on quality! Use performance-proved Goddeyne wheels . . . built to absorb the continuous punishment of hard daily use and rough handling. Insure extra-long service life for your equipment! Priced to compete, Goddeyne wheels are available in sizes from 6" to 16" O.D., and meet design requirements for practically all material handling and industrial equipment, as well as a wide range of farm operating equipment. Special sizes and types on request. Investigate Goddeyne wheels for your products today!

**BOLTED WHEEL CONSTRUCTION
— EASY TIRE REPLACEMENT**

Send Specifications • Write For New Goddeyne Catalog

GODDEYNE WHEEL PRODUCTS (formerly Kayal Wheels)

1300 N. McCLELLAN STREET

BAY CITY, MICHIGAN

DISTRIBUTORS WANTED — WRITE FOR DETAILS

Circle No. 147 on Reader Service Card for more information

ALBION INDUSTRIAL CASTERS



*Off the floor angle-iron
caster operation is practical,
inexpensive and clean.*

• Albion's heavy-duty V-groove casters offer greater utilization of floor space—easier, more economical handling of heavy loads, protect flooring and speed production line operations.

Albion V-G Series casters are readily available to a wide range of practical sizes and capacities to meet your needs.

When you need rugged, dependable casters or industrial wheels that will give you years of service without maintenance problems . . . specify Albion Industries casters for guaranteed quality and economy.



Contact your nearest
Albion representative
or write direct—

**ALBION
INDUSTRIES, Inc.**

ALBION, MICHIGAN

Circle No. 148 on Reader Service Card
156

Savings in Coil Handling . . .

COSTS AMORTIZED IN TWENTY-SEVEN MONTHS

of \$1.14 per sq. ft. per year, it represented savings of \$1,665 per year.

Materials handling costs at the warehouse were decreased by reducing the size of working crew required and eliminating the majority of idle time illustrated in the multi-man chart. Cost savings in manhours in this area amounted to \$10,000 per year. Personnel were thus assigned to more profitable tasks.

Materials handling savings at the manufacturing plant resulted primarily from the transfer of steel coils into and out of the permanent storage racks. These savings amounted to \$7,350 per year.

Additional savings occurred when loading and unloading time of the trailer truck was reduced to the point where five rather than four trips could be made each day. On the fifth trip it was possible to haul manufacturing supplies which were previously brought in by an outside cartage company truck at a cost of \$1,430 a year.

The total cost savings resulting from this improved handling method are summarized in the accompanying table.

In addition to the tangible savings shown, there were the intangibles resulting from decreased exposure to accidental hazards by reducing the amount of manual handling of the heavy, bulky steel coils.

Required Costs of the Improved Method

The new system required the purchase of a considerable quantity of coil stacking racks, four electric fork trucks with related batteries and charging equipment, and rack dollies. These expenses are separately summarized.

These costs, necessary to place the improved method of handling steel coils in effect, were offset by the savings of \$59,545.00 per year. They will be completely amortized in two and one-quarter years.

The solution to this particular handling problem illustrates the savings which can be realized by subjecting handling operations to continuous intensive analysis.

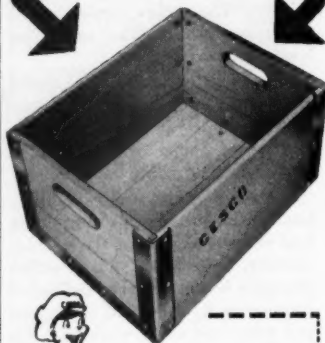


Cesco Tote Boxes

... Do Your Job

- EFFICIENTLY
- EASILY
- ECONOMICALLY

On Conveyors, Pallets, Hand Trucks,
Skid Platforms, or what have you.



- Ruggedly constructed of high grade hardwood lumber
- Special steel reinforced features of zinc coated prime stock
- Self stacking
- Convenient hand holes for positive grip
- Binding rivets PLUS corner lock style yields maximum rigidity

Depending upon the material packed and the handling method the stock sizes listed below will accommodate loads up to 200 lbs.; possibly greater.

CESCO'S 3 STANDARD BOXES (Prices Net-F.O.B. Factory)

Lots of	No. 1	No. 2	No. 3
2000	\$1.80	\$2.05	\$2.20
1000-1999	1.82	2.07	2.22
500-999	1.84	2.09	2.24
250-499	1.89	2.14	2.29
100-249	1.94	2.19	2.34

No. 1 size—(I.D.)—14 1/2" x 11 1/2" x 9"
No. 2 size—(I.D.)—18 " x 11 1/2" x 9"
No. 3 size—(I.D.)—20 " x 11 1/2" x 9"

OTHER CESCO PRODUCTS

Wire Baskets • Tote Trays
Special Pallets



Write today for quotations
on special sizes . . . Please
submit specifications.

**CESCO
CONTAINER CO.**

General Offices: 875 Fifth Ave., New York 17, N.Y.
PHONE: MU 5-6061 • Factory: NORTHAMPTON, MASS.

Circle No. 149 on Reader Service Card
NOVEMBER, 1952 • FLOW

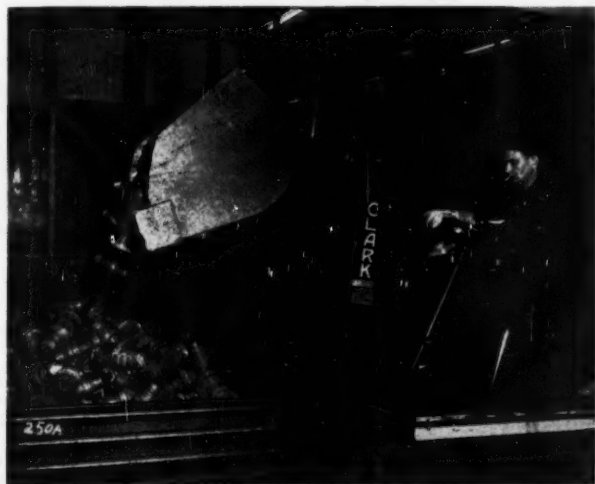
Unloading Speed Increased Five Times

*by use of Fork Truck
Attachment at Detroit
Gear Division of Borg Warner*

A recently developed method of unloading forgings from semi-trailers at Detroit Gear Division of Borg-Warner Corp., has increased unloading speed from two per day to 10 per day.

Forgings are shipped loose in the semi's. A fork truck equipped with a hydraulic shovel attachment, is driven onto trailers from the loading dock. Forgings are scooped up, and through finger-tip controls, the shovel attachment rolls back so that the load can be moved without spillage. The material is moved to tote boxes in the plant where it is dumped. The finger-tip control permits accurate dumping as fast or as slowly as desired by the operator.

Formerly, only two loads per day could be unloaded. If more came in during a particular day, it was necessary to hold the trailers over until the following day. Now, trucks can be unloaded as fast as they come in. It is no longer necessary to pull personnel from other, more productive jobs to meet the demands of occasional peak load periods at the unloading dock. This same attachment comes in handy in other parts of the plant for handling material like scrap, and other bulk materials.



FAST LIFTING SPEEDS OUTPUT !

The fast lifting action of the "Series 700" 'Load Lifter' Electric Hoist shortens handling time. Manpower can process more units per day for less.

Keep your production at high levels around the clock. Put this heavy-duty 'Load Lifter' on the job. Push-button control with only 24 volts at the push button, wipes out muscle strain, increases safety, and maintains worker efficiency. Simple design and rugged construction assure long life in the severest service. Capacities: 1,000 pounds upwards. Single and two-speed control available. Bulletin No. 399 contains all the facts. Write for a copy.



'Load Lifter'
HOISTS

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of "Shaw-Box" Cranes, "Budgit" and "Load Lifter" Hoists and other lifting specialties. Makers of "Ashcroft" Gauges, "Hancock" Valves, "Consolidated" Safety and Relief Valves, "American" Industrial Instruments.

Circle No. 150 on Reader Service Card

Classified Advertisement Section

USED EQUIPMENT — MEN — JOBS — LINES

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

"LINES WANTED"

MANUFACTURERS' AGENT opening office in Buffalo in near future. Desires to represent A-1 Material Handling Companies. Have excellent contacts throughout western New York. Reply c/o FLOW, Box 11152.

REPRESENTATIVES WANTED

WANTED—Sales representatives for complete line of overhead handling equipment (cranes, monorails, hoists) in the following territories: Texas, Southern Ohio and most Southern States; also Minneapolis, Philadelphia, Indianapolis and St. Louis. Commission setup on top-quality, highly competitive line. Write FLOW Box 11252.

FOR SALE

1 Clark Model 2015, 2,000-lb. Gas Fork Lift truck, 1948, rebuilt January, 1950.

1 Truckman Gas Warehouse Towing tractor, pulls 3,000-lb. load.

2 5,000-lb. cap. Magcoa Dock Boards, weight 150-lbs. ea. 1—64"W x 60"L, 1—59"W x 60"L.

6 2,000-lb. cap. Magcoa Dock Boards, weight 40-lbs. ea. 42"W x 36"L.

LUTHE HARDWARE COMPANY
1450 East Aurora,
Des Moines, Iowa

New TRUCK-MAN rack truck Model D; 3500# capacity; 27" x 64" platform; Wisconsin Motor; used less than four hours. Algona Block & Tile Co., Algona, Iowa.

1 Baker Articulated Fork Lift Truck complete with battery and charger. Capacity 4000#; load length 54"; Lifting height 132"; Fork length 42". All equipment is 5½ years old with less than 4700 hours operation; all in very good condition. Labor Savers, Inc., 514 So. Howell St., Davenport, Iowa.

STEEL SHELVING

1000 sections 24" x 36"—9'3" uprights. 5 shelves per section, with shelf reinforcements and companion backs and sides. Used less than 1 year. National Equipment Sales, Inc., 24-16 Jackson Ave., Long Island City, N. Y.

100 QUONSET HUTS

20' x 48' x 11' high in center. Galvanized corrugated steel covered, steel arches. Suitable for storage sheds, etc. Used until recently for veteran housing. Excellent condition. National Equipment Sales, Inc., 24-16 Jackson Ave., Long Island City, N. Y.

HELP WANTED

Nationally known Corporation located in South Eastern Pennsylvania has Permanent Positions for Mechanical Draftsmen and Detailers. Experience and knowledge of Material Handling Conveyors desirable, but not necessary. Please state fully your background and experience in your reply to FLOW, Box 11352.

EQUIPMENT WANTED

Want one or two used hand operated Pallet or Tin Plate Trucks. Toledo Dial Scales.

Security Produce Co.
718 W. Randolph St.
Chicago 6, Illinois

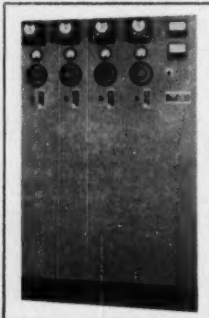
For Special Battery Chargers HERTNER IS YOUR BEST BET!



More and more, day after day, Hertner Electric is being called on to design and build special equipment for special battery-charging jobs... for electric trucks, motorized hand trucks, mine locomotives, railroads, telephone exchanges... wherever battery-charging equipment is required.

Illustrated here is a special-built, 4-circuit, unitized switchboard for charging four separate batteries simultaneously. Of these four batteries any can be one of six different types. This man-hour saver and space-saving charger is equipped with a motor generator with a capacity for four additional circuits, ready for future expansion.

Our staff of experienced engineers and modern production facilities are available to produce custom-built motors and generators to meet your exact requirements. Standard model Hertner battery chargers are available for immediate shipment. For complete information consult your electric truck or Hertner representative, or write direct.



THE HERTNER ELECTRIC COMPANY

12690 ELMWOOD AVE. • CLEVELAND 11, OHIO

A General Precision Equipment Corporation Subsidiary

MOTORS • MOTOR-GENERATORS • GENERATOR SETS

Circle No. 151 on Reader Service Card for more information

Advertisers' Index

A

Acme Steel Co.	13
Aerol Co. Inc.	36
Albion Industries	156
All Steel Welded Truck Corp.	134
Allen Industrial Products, Inc.	143
Allied Mfg. & Sales Co.	152
Allied Steel & Conveyors, Inc.	151
Alvey Ferguson Co.	122
American Monorail Co.	24
American Sales Engineers, Borrowths Mfg. Div.	40
American Steel & Iron Works	149
Angier Corp.	115
Arkansas Pallet Co.	148
Automatic Transportation Co.	1

B

Baker-Raulang Co.	7
Baldwin-Lima-Hamilton Corp. (Testing Headquarters)	29
Baughman Mfg. Co.	145
Belt Corp.	130
Big Joe Mfg. Co.	142
Bostitch	112
Brainard Steel Corp.	109
Brummeler Steel Products Corp.	8
Buda Co. The	18
E. W. Buschman Co.	89

C

C & D Batteries, Inc.	56
Cambridge Wire Cloth Co.	144
Central Fibre Products Co.	110
Cesco Container Co.	156
Wm. Christensen Co. Inc.	124
Clark Equipment Co.	28
Coffing Hoist Co.	95
Colas Cranes, Inc.	126
Colorado Fuel & Iron Corp.	4
Colson Corp.	155
Colson Equipment & Supply Co.	130
Conco Engineering Works	146
Convoy, Inc.	143
Cullen-Friedrich Co.	152
Cushman & Denison Mfg. Co.	116

D

Darnell Corp. Ltd.	153
Derby Sealers, Inc.	107
Detecto Scales, Inc.	140
Detroit Hoist & Machine Co.	153
Diamond Chain Co. Inc.	37
Dodge Mfg.	17
Chas. Wm. Doeppke Mfg. Co.	127
Durable Mat Co.	108
Dura-Tred Co. Inc.	139

E

Thos. A. Edison, Inc.	41
Electric Products Co.	144
Electric Storage Battery Co.	25
Elwell-Parker Electric Co.	5
Equipment Mfg. Inc.	133

F

Factory Service Co.	125
A. B. Ferquhar Co.	10
Faultless Caster Corp.	Inside Front Cover

Dave Fischbein Co.	117
Flexible Conveyor Co.	153
Flexible Steel Lacing Co.	132
Flow Directory	52
Food Machinery Corp.	141

G

General Electric Co.	42 & 43
Gerrard Steel Strapping Co.	110
Gatman Brothers Mfg. Div.	142
Globe Hoist Co.	129
Goddayne Wheel Products Co.	155
B. F. Goodrich Co.	55
Adolph Gottscho, Inc.	114
Gould National Batteries, Inc.	21

H

Hamilton Caster & Mfg. Co.	127
Hapman Conveyors, Inc.	132
Harrington Co.	128
Hertner Electric Co.	158
Hohl Machine & Conveyor Co.	146
Frank G. Hough Co.	9
Howe Scale Co.	152
Hydroway Scales, Inc.	136
Hyster Co.	45

I

Ideal Stencil Machine Co.	114
International Paper Co. (Bagpak Division)	105
International Paper Co. (Container Division)	111
Ironbound Box & Lumber Co.	126

K

Kilbourne & Jacobs Mfg. Co.	151
-----------------------------	-----

L

Lamson Corp.	50
Lensing Co.	88
G. B. Lewis Co.	119
Lewis-Shepard Products, Inc.	26 & 27
Lift Trucks, Inc.	150
Louden Machinery Co.	137
Lull Mfg. Co.	139

M

Magline, Inc.	93
Magnesium Co. of America	16
Manning, Maxwell & Moore, Inc.	150, 157
Marietta Concrete Corp.	145
Market Forge Co.	147
Marsh Stencil Machine Co.	116
Mechanical Handling Systems, Inc.	48
Mercury Mfg. Co.	15
Merrill Brothers	154
Metzger Co.	133
Michigan Crane & Conveyor Co.	14
Minnesota Mining & Mfg. Co.	113
Monarch Rubber Co.	31
Monroe Co.	141
Motorola, Inc.	11
Moto-Truc Co.	54

N

Nolan Co.	131
-----------	-----

O

Samuel Olson Mfg. Co. Inc.	128
Oxy-Catalyst Mfg. Co. Inc.	129

P

Palmer-Shile Co.	160
Paltier Corp.	123
Parker Sweeper Co.	131
Permax Corp.	134
Pittsburgh Steel Products Co.	2
Powell Pressed Steel Co.	51

R

Rack Engineering Co.	148
Rapids-Standard Co.	49
Raymond Corp.	22 & 23
Ready Power Co.	135
Revolutor Co.	151, 154
Richards-Wilcox Mfg. Co.	90
Rolock Inc.	128
Ross Carrier Co.	19
Rotary Lift Co.	149
Roura Iron Works	53
Ruger Equipment Co.	92

S

Sauerman Bros. Inc.	140
Service Caster & Truck Corp.	138
Service Recorder Co.	118
Silant Hoist & Crane Co.	149
Siskraft Co.	106
Speedways Conveyors, Inc.	143
Standard Pressed Steel Co.	46
Stanley Works, The	96, 135
Sterling Wheelbarrow Co.	154

T

Telday Mfg. Co.	148
Towmotor Corp.	85
Truck-Man Div., Knickerbocker Co.	91
Truscon Steel Co.	44

U

Union Metal Mfg. Co.	12
Union Steel Products Co.	33
Unistrut Prods. Co.	87
United States Rubber Co.	20

V

Veeder-Root, Inc.	6
-------------------	---

W

Wayne Pump Co.	94
Weber Addressing Machine Co.	108, 117
Westinghouse Electric Corp.	34 & 35, Inside Back Cover
Wheeler-Brady, Inc.	121
Wilshire Power Sweeper Co.	147

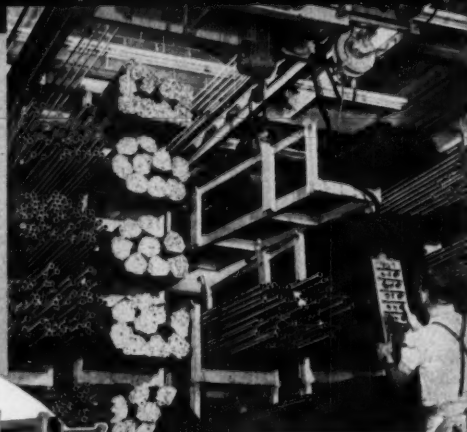
Y

Yale & Towne Mfg. Co.	47
-----------------------	----

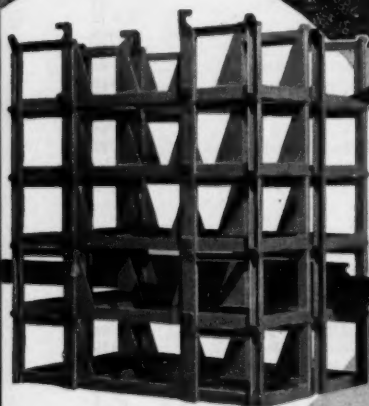
PS PORTABLE Heavy Duty BAR RACKS

**for quick, convenient,
safe, efficient storage**

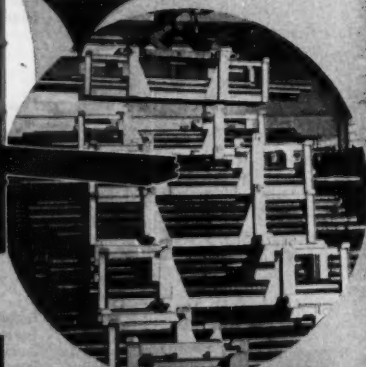
Handling and storage of steel shapes simplified for one-man operation. Using overhead crane for storage in tiers, rack selection is no problem. Design permits bar selection from any rack without disturbing tiers. Built to any capacity and length of stock.



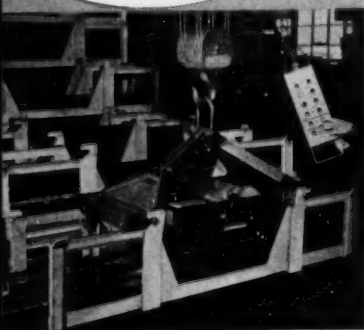
Any rack easily accessible.



Item No. C-497



Easily placed on trucks for removal to machines not under crane.



Automatic Tong by HEPPENSTALL, Pittsburgh, Pa., for easy pick-up and safe carrying.

When Ordering Always give "Item" number; this will help prevent error.
Write for catalog.

DESIGNED AND MANUFACTURED BY

Palmer Shile Co.

16012 FULLERTON AVE., DETROIT 27, MICH.

OTHER Palmer Shile PRODUCTS



WELDER'S TRUCK



WOOD BOX metal bound



BARREL TRUCK loads automatically



TRAILER TRUCK side dump



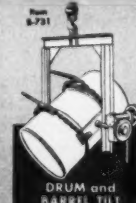
UTILITIES RACK on wheels



SHEET STEEL GRAB



CARBOY TRUCK



DRUM and BARREL TILT



HAND DUMP TRUCK



All metal PALLET



Automatic END DUMP



MULTI-PURPOSE CART



BARREL and BOX SKID



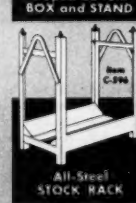
STOCK CHECKER'S TRUCK



Industrial DUST PAN



Sloped Bottom BOX and STAND



All-Steel STOCK RACK



CORRUGATED BOX with legs

★ Write for New Catalog ★

"With RECTOX" I just twist a dial...

Sure makes charging easier, quicker!"



All done with dials now! No taps to change! Just set the dials for the type battery being serviced and the charging rate desired . . . Rectox does the rest. It's a completely automatic, fuss-free, timesaving operation that anyone can perform! A few more facts:

- ★ Can be moved easily to where greatest need exists.
- ★ Combination, Rectox units charge lead-acid or nickel-alkaline-type batteries.
- ★ No energy-wasting resistor . . . no moving parts. Entire unit has heavy industrial construction.

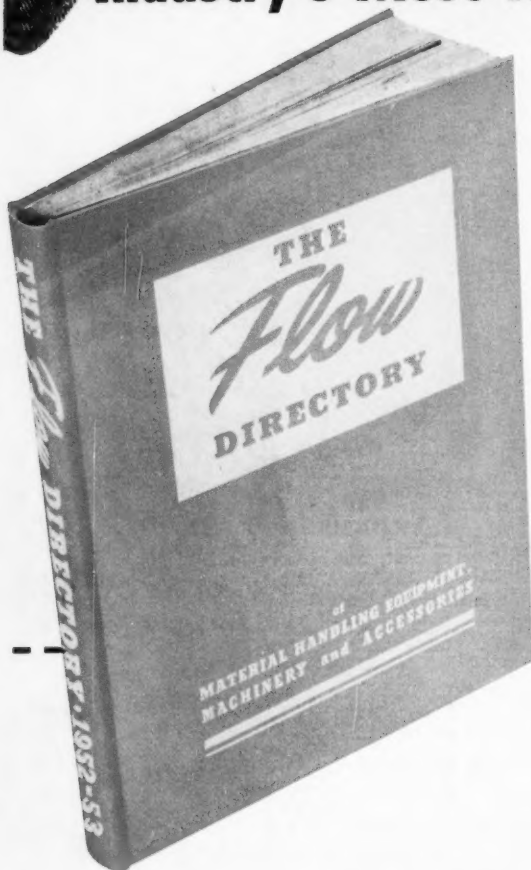
MORE DATA? Ask your Westinghouse representative for a copy of DB-19-040, or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-21680



Circle No. 260 on Reader Service Card for more information

Industry's Most Thumbed Directory



IT WILL PAY...

Whether your company makes tanks or kiddy cars, whether you employ 10 or 10,000 people, the new FLOW DIRECTORY provides the only permanent volume of authoritative information about materials handling equipment and accessories. The new FLOW DIRECTORY is the most comprehensive, accurate source of information ever published for plant operating executives. It will aid in reducing costs and increasing production. Complete trade mark listings are included to aid your Purchasing Department in identification of equipment.

Order Your Copy of the Flow Directory Now!

Flow Directory
1240 Ontario St.
Cleveland 13, Ohio

Please send me.....copy(ies) of the new 1952-53 FLOW
DIRECTORY OF MATERIAL HANDLING EQUIPMENT, MA-
CHINERY & ACCESSORIES at the price of \$6.50 per copy.

Name

Title

Company

Street

City

Zone

State

The FLOW DIRECTORY is divided into six convenient easy-reference classifications:

1. Product Classification, plus "Who Makes Equipment." Used as standards by all engineering societies, by associations, and by military and industrial handling groups.
2. "Who Sells Equipment". Manufacturers' outlets are alphabetically arranged by cities to facilitate ease of reference. This reference section will give you the information you want in jiffy-quick time.
3. "Where To Buy Equipment". Listed by geographical area are the independent local sources of procurement of equipment and supplies.
4. Trade Mark Index. This listing of all the names of equipment in this field is designed to assist the user to find the name of the manufacturer when only the trade name is known.
5. Engineering and Technical Data Section. This section has been greatly enlarged with additional charts and graphs.
6. Manufacturers' Catalogs. These are designed to show what equipment is available to solve your various handling tasks. Special emphasis is given to user specifications.

To be sure that you do not miss out on our latest edition . . . order your copy today.